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POSTVACCINAL ENCEPHALITIS AND ALLIED CONDITIONS*

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In 1923 I had the privilege, as Frederick A. Packard lecturer, of addressing the College of Physicians on a subject related to the present one. Some may recall that the Packard lecture was devoted to a consideration, chiefly from the standpoint of the pathologic changes, of the disease called indifferently "lethargic" and "epidemic encephalitis." The effort made in that lecture was to define the disease in as clear a manner as was possible at the time, and to separate it from certain pathologic and clinical complexes with which it had been brought into alliance. What was really undertaken, and perhaps accomplished, was to distinguish epidemic encephalitis from epidemic influenza, Australian X-disease, herpes virus encephalitis, and even from epidemic poliomyelitis. The net result of this analysis was to present epidemic encephalitis as a clinical and pathologic complex of independent nature, the etiology of which still remained undetermined.

In 1923, epidemics of encephalitis were still widely prevalent in many parts of the world, and only just about to reach a maximum in England and Wales. Today the disease is less widely and less severely epidemic; and except for our essential ignorance concerning its nature, it might be looked on as receding and taking on the character of an endemic and sporadic malady. This change in its epidemiology is further accentuated by a modification of seasonal occurrence. When the epidemics were at their height, they tended to reach maximum proportion in the late winter months. Today, cases of the disease are encountered throughout the year.

The two questions which are still uppermost in the minds of investigators relate to the etiology and the earlier history of epidemic encephalitis. I am leaving to one side such other important matters as treatment, sequels, and in general problems relating to the clinical aspects of the disease because, not only am I incapable of dealing with them adequately, but they are so present to the mind of the clinician that I have nothing novel to bring him.

What may be called a determined effort has been made to bring epidemic encephalitis in man into relationship with herpes virus encephalitis in rabbits and even in monkeys. The main source of this effort has been the Pasteur Institute in Paris under the influence of Levaditi. A less insistent center of this idea has been the laboratory of Doerr in Basle. Levaditi seeks to identify the two diseases etiologically according to the resemblance of the inoculation lesions of the brain in the rabbit and monkey, with the spontaneously occurring lesions in the brain of man. This undertaking disregards all criteria which make epidemic encephalitis in man a so-called clinical entity, and debases the disease, as it were, to mere forms of inflammatory encephalitis of acute character, deprived of the peculiarities of clinical manifestation and the immediate and ultimate pathologic effects which really distinguish it. It is true, of course, that herpes virus readily induces an encephalitis of acute or hyperacute variety in rabbits, and that occasionally monkeys of several species also can be made to respond to direct brain inoculation of this virus by acute, sometimes fulminating, inflammation. There is, however, striking absence of essential conformity between these rapidly fatal infections and the whole complex train of symptoms and consequences which characterizes epidemic encephalitis in man.

A puzzling phenomenon has always been the ease with which herpes virus can be passed from herpes vesicles in man to the rabbit, and the extraordinary rarity with which it has been communicated to this animal with materials taken from the nervous system of cases of epidemic encephalitis. Recently Rose and Walthard of Doerr's laboratory thought that they had hit on the explanation of the discrepancy. They found that a herpes virus strain when injected into the brain of the guinea-pig induced encephalitis and then disappeared. That is, the herpes virus encephalitis of the guinea-pig could not be passed by animal to animal inoculation, as can that of the rabbit. In this difference they perceived, as it were, the missing etiologic link uniting human epidemic encephalitis and experimental herpes virus encephalitis. They emphasized the point that in the guinea-pig, and assumedly in man, the herpes virus acts for a brief period, injures and inflames the brain, and in turn disappears. Aside from the significant fact that human epidemic encephalitis is a malady in which relapse and progression are common, the explanation fails to account for the existence of strains of herpes virus of more potent qualities which behave in a quite different manner. Indeed, as soon as the guinea-pig experiment is carried out with a strong herpes virus, the outcome is wholly changed; the virus is not destroyed in the course of the inflammatory reaction that leads to encephalitis, but multiplies in the infected and inflamed brain, and is capable of unbroken, indefinite passage through guinea-pigs.

In like manner, competent evidence excludes streptococci and other banal bacteria as incitants of epidemic encephalitis. All such bacteriologic observations may be attributed to technical errors, or at most to secondary, intercurrent infections, of which indeed the proved number is small. Our position has therefore remained

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unchanged with regard to the essential causation of epidemic encephalitis. This disorder, which clinically assumes numerous forms, is still to be classed with the diseases of unknown etiology.

On the side of the history and epidemiology of the disease there has been some slight enlightenment. It is now quite accepted either that the group of cases arising in Vienna during wartime and described so well by von Economo in 1917 was anticipated by a somewhat less uniform group of cases observed by Cruchet in the war zone in France in 1915 and later, or that the cases which each observer encountered arose almost simultaneously. There can hardly be a doubt that the Austrian investigator perceived the significance of the cases in a brilliant manner. Incidents that have come to light more recently point to the occurrence of sporadic cases of an indistinguishable disease in Roumania as early as 1915. What, therefore, now appears to have been the case is that in about 1915 and 1916 Cruchet in France, von Economo in Austria and Urechia in Roumania were recognizing cases of a nervous disorder of peculiar clinical character, and that von Economo in Austria brought the cases he observed into a new, common category to which he applied the name of encephalitis lethargica.

This aspect of the wide early distribution of the disease is considered at length by Stern in the 1928 edition of his comprehensive book on epidemic encephalitis. Moreover, Stern has brought together chance descriptions from the works of earlier authors suggestive of the previous occurrence of sporadic and grouped cases of a nervous malady which may well fit into the symptom complex now termed "epidemic encephalitis." When this hazardous field is explored, it must be kept in mind that one can expect small aid from pathology. Up to a hundred years ago, the meager pathology of the brain was embraced under the two heads of "hardening" and "softening." We are on firmer ground in weighing clinical descriptions, although, as Stern has pointed out, the term "lethargos" used in early medical writings was applied to every acute febrile disease attended by prostration and somnolence. A great stumbling block in the path of the medical historian is found in the spectacular character of epidemic influenza and the frequency of the complications attending that epidemic disease, and the tendency to ally with it special clinical manifestations not otherwise easily accounted for. I have already dealt with this subject in the Packard lecture, and the more recent articles reiterating the point have not led me to revise the views there expressed, which are to the effect that epidemic encephalitis is not to be classed with the influenzal or post-influenzal group of infectious diseases.

The term "sleepy sickness" seems to date from Fechting's use of the expression about 1580. A century later Sydenham described under the term "Febris comatosa" certain cases attending influenza; but, as the common ocular paralyses of present-day epidemic encephalitis are not enumerated among the symptoms, no particular grounds exist for separating these cases from the common cases of "lethargos" of his day. Netter has indeed resurrected an instance recorded by Hildesheim in 1695 as a curiosity of nature, in which a young girl suffering from fever, headache, prolonged sleep (eleven days) attended by pronounced strabismus and ptosis, made a slow but complete recovery. It is probable that the minute search now going on will reveal still other instances in which the outward signs are those of certain forms of epidemic encephalitis. This is as it should be, since if we assume that disease to be of the nature of an infection and the epidemics to be produced by the rapid passage of a specific microbe from person to person, it is highly probable that the incitant of the disease existed in earlier historical periods. At those periods the precise conditions required to convert sporadic or endemic prevalence into epidemic outbreaks may have been less pronounced than in our time. Looking at the civilized world as now constituted, this need not be regarded as a unique occurrence. The severe pandemics of cerebrospinal meningitis and poliomyelitis of the twentieth century probably exceed in magnitude and intensity anything of the kind previously arising. We are now living in a far more populous and closely knit world than existed at any time in the past. The large compacted population is striving with brain and brawn as never before; what is more probable, therefore, than that these new, strenuous conditions of living should be reflected in the diseases, considered in mass, from which mankind now suffers?

POSTVACCINAL ENCEPHALITIS

We are now confronted with another problem in the same category. Ever since Lucksch in Prague, in 1924, called attention to cases of supposed epidemic encephalitis following antismallpox vaccination, the observed number of such coincidences has been rising steadily. Bastiaanse, indeed, observed the first Dutch instance in 1924, since which time Holland has suffered more severely than any other country, with the possible exception of England. Probably no European country has wholly escaped instances of the sort, and a small number have been reported in the United States. The small number and sporadic occurrence of cases of encephalitis following vaccination in Europe generally and in America might have been overlooked, had it not been for the more massed outbreaks in Holland and England and for Lucksch's report. This view is enforced by the fact that, now that a postvaccinal variety of encephalitis is widely recognized, cases which have arisen earlier than 1924 are being redescribed or reconstructed from examples of uncertain nervous maladies observed or reported prior to 1924. In England alone some eleven such cases have been recovered from the records of 1922; Turnbull and McIntosh observed what seems an undoubted case in London in 1912, Comby in Paris in 1905, and three of Wilson's and Ford's cases arose in 1922, 1923 and 1924. In Germany an attempt has been made by Kaute to collect and reconstruct cases from earlier published reports, and Mader has recorded a case observed in 1912.

It was Lucksch's report in 1924 that first arrested attention, although it is clear from Bastiaanse's observation made in the same year and the subsequent events in Holland that the Dutch experience would have aroused similar wide interest. It is worth mentioning that the two most severe outbreaks have arisen in Holland and England, two countries separated by a narrow sea boundary. No other European or American country has yielded numerous cases between 1924 and the present time.

The first impression was that vaccination somehow converted a latent epidemic encephalitic infection into an active one. That was the view of Lucksch, which he supported by autopsy and microscopic observations. Subsequently it was proved to be erroneous. It was the view also of Bastiaanse and other Dutch observers, as well as of Netter, who studied the first Dutch statistics. It is indeed a fact that the early Dutch cases overlapped in time with an abnormally high epidemic encephalitis incidence. However, Dutch writers soon abandoned

this conception, since the incidence of the postvaccinal cases continued high and that of epidemic encephalitis veered in the contrary direction.

In general it may be stated that epidemic encephalitis was practically everywhere on the decline as the number of cases of postvaccinal encephalitis rose to a maximum. Hence the connection of the two nervous maladies seemed improbable on epidemiologic grounds alone; as we have now learned, the diseases are distinguished sharply by the clinical course and by the microscopic observations.

ENGLISH AND DUTCH EPIDEMICS

The English and Dutch experience with postvaccinal encephalitis far exceeds that of other countries, and most of our detailed knowledge of the disease is derived from the studies made in those two countries. The studies cover the essential features of the clinical course, microscopic study and epidemiology, and it is well to follow them in this exposition. It chances that the limited studies carried out in other countries are in essential agreement with the experience of the English and the Dutch.

The British report covers the years 1922 to 1928 and totals ninety-three cases, and the Dutch report the years 1924 to 1928 and totals 150 cases. Neither report is complete. The Dutch add fifty cases arbitrarily, as of more indefinite clinical character and therefore missed, and the English do not make any effort to complete the number arising on conjectural grounds. It is, however, significant that at the present time (summer of 1929) cases continue to be reported from England. The cessation of reports from Holland is probably explained by the official discontinuance there of vaccination for one year, while the disease is being studied as completely as is possible.

In what follows immediately, the disease postvaccinal encephalitis will be considered from the standpoints of clinical manifestations, microscopic character, and epidemiologic features. The chief original papers on the subject and some excellent reviews are now readily available. My personal experience is based on the microscopic examination of specimens kindly sent to me by Dr. Ledingham of the Lister Institute, London, including sections from Perdrau's case, and of specimens secured through Dr. McCoy of Washington of a typical case, to be referred to later, from East St. Louis, Ill. The net results of my study of the literature and the microscopic examination of the tissues may be given in this place, and are to the effect that postvaccinal encephalitis is a disease complex of striking individual nature, in the sense that it presents a consistent pathologic picture, that term being used in a wide sense, clearly separable from epidemic encephalitis, although it may prove to bear resemblance to the form or forms of encephalomyelitis which arise occasionally in the course of the exanthematous disorders of childhood and in connection with certain rare cases of other infections both in children and in adults.

CLINICAL MANIFESTATIONS

The two immediately arresting features of postvaccinal encephalitis are its hyperacute course and its high fatality. The mortality among the assembled English cases is 50 per cent, and among the assembled Dutch cases 35 per cent. The difference of 15 per cent may readily be explained by the inclusion in the Dutch figures of a greater number of mild cases and their omission from the English figures.

There is still another feature of the disease which ultimately arrests attention; namely, that recovery when it takes place tends to be complete. This outcome is independent of the stormy course and alarming character of the disease at the outset, and is in striking contrast with the end-result in cases of epidemic encephalitis of all grades of severity.

The clinical course is usually a rapid one, and death occurs or amelioration sets in within one or two weeks. In view of the fact that cases of postvaccinal encephalitis are being reported rarely in the United States, it may be of value to present in brief form the common clinical characters of the malady.

The onset of the nervous symptoms is abrupt and rarely gradual. Hyperacute symptoms are commoner in infants than in older children and adults. Prodromes including headache, vomiting and pyrexia arise, but the tendency is for more impressive, distinguishing and alarming symptoms to supervene quickly. The English regard the three prodromes given, plus paralysis, to be the cardinal symptoms of postvaccinal encephalitis. In infants, again, convulsions involving one or both sides of the body are rarely wanting; in older children and adults, convulsions are less common and may even be absent altogether from groups of cases. In hyperacute cases consciousness is quickly lost, the temperature rises to an alarming height, profound prostration and paralysis set in, and death may occur in from two to four days. Older children and adults who escape the intense manifestations develop paralytic effects involving one or more members of the body and attended inconstantly with meningism. Not only are the extremities paralyzed, but also parts supplied by the cranial nerves, so that paralyses of the face, eyes, speech and deglutition arise. The reflexes usually disappear and the Babinski sign is irregularly present. The functions of the bladder and rectum are disturbed, leading either to retention or to incontinence. The occurrence of trismus has led to confusion with tetanus and the administration of tetanus antitoxin, and tremor and choreiform movements have been described.

The cerebrospinal fluid is under increased pressure, and, except in severe and fatal cases in which mononuclear cell excess and presence of protein have been noted, it tends to be normal and has always proved sterile.

The vaccination process has been described as progressing normally, although in certain instances it has been stated to be severe. No distinctive rash attends the other symptoms.

The severity of the onset and course are not reliable guides to prognosis. Extensive paralyses disappear and abolished reflexes return in a short time. The duration of the acute disease is usually from one to two weeks, irrespective of recovery or death, but protracted cases have been described as exceptions, although it has not always been made clear whether complications arose prolonging the usual duration. Pette gives as the distinguishing characteristics of postvaccinal encephalitis the hyperacute onset, evanescence of the severe symptoms when recovery occurs, and tendency for the restoration of function to be perfect, although in rare instances mental deterioration or residual paralysis follows.

MICROSCOPIC CHANGES

It is not remarkable that the first fatal cases of postvaccinal encephalitis were mistaken for epidemic encephalitis attending antismallpox vaccination. And yet the gross appearances of the brain and spinal cord bring out distinctions. While congestion of the meninges was a constant finding, punctiform hemorrhages and areas of softening in the brain and spinal cord

have also been noted, and they are conspicuously absent in cases of epidemic encephalitis.

The lesions as disclosed by the microscope are more impressively distinct. A mere cursory examination of the basal structure of the brain reveals infiltrative lesions which may be confused with the corresponding lesions in epidemic encephalitis, but a complete histologic study of the brain and spinal cord provides a basis of differentiation. Complete studies of this sort led McIntosh and Turnbull and Perdrau in England, Bouman and Bok in Holland, and Pette in Germany to the formulation of microscopic changes characteristic of postvaccinal encephalitis, which with certain allied diseases already referred to are being classed under the designation of "diffuse encephalomyelitis."

As compared with epidemic encephalitis, in which the lesions are nearly always confined to the brain and chiefly to the basal gray matter with much rarer involvement of the cortex and white matter, postvaccinal encephalomyelitis is a disease in which both brain and spinal cord, and both the gray and white matter of each, are implicated, and in which the white matter is attacked by preference.

The characteristic type of lesions in epidemic encephalitis is proliferative and infiltrative, and the increased cells are supplied chiefly from the microglia. The characteristic type of lesion in postvaccinal encephalitis is degenerative, exudative and proliferative. The first of these leads to areas of apparent softening, in which a process of demyelinization of varying extent has taken place. The second and third are brought about by accumulations of cells in communication with the demyelinated regions, in which the blood vessels participate strongly. These vessels show rings (cuffs) of small cells limited chiefly to the outside coats but sometimes invading this sheath, connected with which are similar infiltrations penetrating in a gradually diminishing degree the surrounding parenchyma. The infiltrating cells are composed of proliferated neuroglia cells and possibly endothelial cells, exuded plasma cells, and polymorphonuclear leukocytes. When actual disorganization is going on, compound granular corpuscles are encountered, and while in these places the finer axis cylinders are lost, the coarser ones withstand the destructive process. When the disease has endured sufficiently long, reparative changes are associated with the degenerative changes, and here microglial activity comes to be pronounced. The ganglionic nerve cells participate but little in the destructive processes and neuronophagia is rarely seen.

As regards the distribution of the lesions, it may be stated that the leptomeninges, aside from congestion and pinpoint hemorrhages, are affected but slightly, although occasional foci of combined lymphocytes, plasma cells and endothelial cells are seen. The brain and cord are diffusely affected, often without particular choice of locality, though not everywhere with the same intensity. White and gray matter are involved impartially, and no particular system shows involvement more than another. On the whole, the cerebral cortex is often spared and the lumbar region of the spinal cord is more commonly the seat of severe lesions than are the cervical and dorsal parts. Certain cases have shown progressive increase in severity of the lesions extending from the cervical to the lumbar cord. The basal structures of the brain are widely affected, including the substantia nigra, in which the lesions may be disproportionately severe.

One is thus permitted to measure the pathologic conditions arising in the brain and spinal cord on which the clinical signs and course of the disease rest, and to speculate on the remarkable phenomenon that with lesions so widespread and severe in fatal cases, such complete functional restoration takes place in those that recover.

Bouman and Bok in Holland, and Pette in Germany, have called particular attention to the histologic resemblance of the nervous lesions of postvaccinal encephalitis with those of the diffuse encephalomyelitis arising from certain miscellaneous infections of adults and also, if rarely, of younger persons.

EPIDEMIOLOGIC FEATURES

The epidemiologic features of postvaccinal encephalitis can be dealt with at this time only in a tentative fashion. And yet the cases which have so far appeared in numbers, and even cases arising singly, have shown features that lend themselves to consideration from this point of view. At the outset any careful observer will find something in the events of the past five years or so to give him pause, in view of the decades during which mass vaccination has been carried out on a world-wide scale without a remotely corresponding series of nervous complications having appeared. That the events are not wholly without parallel is shown by the

TABLE 1.—*Time Between Vaccination and Onset of Nervous Symptoms*

Interval in Days	Dutch Cases	English Cases
Two	..	2
Four	..	2
Five	1	..
Seven	3	4
Eight	4	1
Nine	6	2
Ten	19	11
Eleven	30	23
Twelve	30	23
Thirteen	12	12
Fourteen	6	2
Fifteen	2	1
Sixteen	1	..
Seventeen	3	1
Eighteen	2	1
Nineteen to thirty-four	4	3
Total cases	123	87

fact that Comby has recalled a probable case occurring in 1905; a case arising in 1912 was reported by Turnbull and McIntosh, and another by Mader; supposed cases were recorded by Kaute between 1912 and 1927; Wilson and Ford observed cases dating from 1922 and there were a dozen English cases in this year. Taking into account the fact that all or nearly all of these cases have, as it were, been reconstructed so as to fit them into present-day knowledge, one is led to believe that other cases, not yet revised or wholly misinterpreted as being connected causally with vaccination, must have arisen. It is even probable that certain cases have been wrongly diagnosed as tetanus following vaccination, and this danger should be kept in mind when future cases susceptible of this erroneous interpretation come to notice. All this leaves us unenlightened as to why between the years 1922 and the present time the cases of nervous complications of vaccination should have increased in numbers and in extent of their distribution. Bijl's suggestion that general vaccination is a kind of artificial mass epidemic, which, like other epidemic maladies arising naturally may be attended by complicating, secondary diseases, fails to explain the phenomenon, because it fails to account for the lack of the complication prior to 1922.

Perhaps one of the most significant incidents of postvaccinal encephalitis is the regularity of the time interval

between vaccination and the onset of the nervous symptoms. If this interval is called the incubation period, the English and Dutch groups, with which the isolated cases of other countries conform, are in this respect remarkably uniform. This correspondence is brought out by table 1.

What is immediately striking is the strong tendency for the nervous manifestations to declare themselves between the tenth and thirteenth, and especially on the eleventh and twelfth days after vaccination. The English reports indicate that the outlying cases, or the ones arising on the second to the fourth and the twenty-third to the twenty-sixth days, were in infants. This fact, if it is true in general, carries its own interesting if still uninterpretable meaning, because the indications are that infants up to the second year of life are relatively insensible to the postvaccinal nervous malady. Thus far the countries in which vaccination is widely resorted to in infancy have reported few and only sporadic cases of the postvaccinal nervous disorder. This seems to have been the case in Germany as in the United States, and in the latter country the cases reported center around the sixth year, although Wilson and Ford report one case at 2 years of age.

The English and Dutch figures and the occasional reports from other countries agree in pointing to school age as being the period of greatest susceptibility. I interpret school age, since the wide introduction of the kindergarten, as extending from the third to the sixth years, which are also the ages at which the largest number of cases have been reported as showing the severe nervous disturbance. There are two definite age periods at which most vaccinations are performed: one is in infancy and up to the second year, and the other at school age, a somewhat more variable period. In England, as in the United States, most vaccinations are made in infancy, in Holland at the school age. The United States seems to have escaped the postvaccinal disease so generally, and such few cases as have been reported center about school age, that the relative frequency may be conjectured to be alike in all these countries. Some contributing factor, however, is more commonly or widely effective in England than in the

TABLE 2.—*Age Incidence in Holland and England*

Holland		England	
Ages	Number of Cases	Ages	Number of Cases
0–1	1	0–1	9
1–2	1	1	3
2–3	7	2	..
3–4	34	3	1
4–5	27	4	1
5–6	37	5	1
6–7	15	6	5
Over 7	1	7	11
		8	12
		9	5
		10	6
		11	6
		12	8
		13	5
		14	3
		15	4
		Over 15	14

United States, although the operation of this factor is highly irregular, not to say haphazard. Concentration of vaccination and incidence of the encephalitis do not go hand in hand. Certain counties in England displayed high incidence, and yet the analysis of cases of encephalitis arising among the vaccinated from 1 to 15 years of age, during the 1923 epidemic, showed for these counties an incidence of 1:800, as compared with an incidence of 1:1,100 in England and Wales as a whole.

There is a nonconforming incident to be observed in table 2. In Holland the cases stopped abruptly with the seventh year; in England they still arose exceptionally up to the fiftieth year. Hence there is no sharp age limitation of susceptibility. Here again mere differences in practice determine the result. English law and custom permit vaccination to be long deferred. Consequently, in a time of danger from smallpox, many adults are vaccinated. The cases reported among adults in England may also include revaccinated persons, as noted by Gildemeister. No mention has usually been made whether in the revaccinated the primary vaccination was successful. In the one instance coming to Gildemeister's attention, scars of a previous, successful vaccination were absent.

TABLE 3.—*Age Incidence as Affected by Number of Vaccinations, According to Terburgh*

Under 1 year....	1 case of postvaccinal encephalitis to 27,405 vaccinations
From 2 to 3 years	1 case of postvaccinal encephalitis to 22,407 vaccinations
From 3 to 6 years	1 case of postvaccinal encephalitis to 2,586 vaccinations
About 6 years....	1 case of postvaccinal encephalitis to 2,209 vaccinations

Finally, in England, two thirds of the vaccinations are performed during the first year of life, and this age period yielded 9.8 per cent of the cases of postvaccinal encephalitis recorded. The remaining one third of the vaccinations taking place at school age yielded 85 per cent of the nervous cases. No case was noted in an infant under 6 months. Mader of Frankfort-on-the-Main does, however, report a case at 6 months. Terburgh of Holland has compiled certain figures, numerically tentative, bearing on age incidence as affected by the number of vaccinations. They show that 79 per cent (ninety-eight out of 124) of the cases occurred in the third, fourth and fifth years of life. Table 3 is based on Terburgh's data.

The foregoing does not exhaust the epidemiologic data supplied by the recorded cases. Other incidents of at least present interest may be grouped together although future experience may alter their apparent significance. Contagion has not played a part in producing cases among either the vaccinated or the nonvaccinated, and seasonal effects are wholly wanting. This is in contrast to the history of epidemic encephalitis, in which contagion is believed to play a part, if only a subordinate one, and seasonal influence was originally strongly indicated. On the other hand, multiple cases have arisen in households and small communities. They have always been among the vaccinated and usually have arisen simultaneously. The English describe this event as "simultaneous series of explosions quite unconnected"; in view of the fixed incubation period, this is what would be looked for. A suggestion of family disposition is seen in the occurrence of two cases in children vaccinated, respectively, in 1923 and 1925. In England, females have been attacked about twice as often as males, sixty-two cases giving a ratio of 1:2. The largest annual number of recorded cases is fifty-one for England in 1923. Holland recorded forty in 1925, thirty-five in 1926 and fifty in 1927. During the recent summer months (1929), seven fatal cases have been reported from England. Doerr estimates that about 400 cases have been reported in the past five years and thinks that the number understates the actual occurrences.

ETIOLOGY

Up to now we have been on pretty solid ground in our explorations. Our next steps must, I fear, be taken on less secure terrain. Indeed, we are about to

enter territory in which conjecture and hypothesis often take the place of confident observation.

Perhaps this situation need not be regarded as disheartening. The unraveling of pathologic complexities is often a laborious process. After ten years of intensive study, we are still ignorant of the immediately causal nature of epidemic encephalitis. Our plight will become discouraging, I think, if a too ready or simple explanation of the etiology of postvaccinal encephalitis is adopted.

Two or three lines of conjecture have been followed in the effort to explain the recent numerous cases of the disease. Vaccine virus itself has been thought of as the offending agent; or vaccine virus, introduced into the skin by vaccination, has been accorded the power to rouse into activity a second micro-organism already present in the body in a state of latency. Finally, something etiologically indicative has been attributed to the fixed incubation period of about ten to thirteen days after vaccination. This is the period during which antibody formation reaches a maximum. Hence Glantzmann and others have suspected that the first action of the vaccinia virus is to sensitize nervous tissue, after which, at the height of antibody production, reaction occurs, this reaction being allergic or anaphylactic in nature, producing therefore a kind of "shock" which ushers in the encephalitic process. This view is highly artificial and it encounters serious obstacles at the outset, one of which is the relative rarity of the process, in view of the frequency of vaccination. Another is the failure of so general a biologic phenomenon to appear during the previous hundred years when antismallpox inoculation has been steadily growing in volume. There is nothing distinctively different in vaccinations as now made from those carried out before 1922, and yet, by general consent, cases of postvaccinal encephalitis, very rare before, have become disturbingly frequent since that date. No one virus or even several viruses have been responsible for the change, since these strains have been in use many years. The neurotesticular vaccine of Noguchi and Levaditi has received wide employment in Spain at least, where as far as is known cases of encephalitis have not arisen among the nearly 3,000,000 persons on whom it has been used. When the Spanish rabbit strain was employed in Holland, nervous complications followed as with the bovine strains.

The hypothetic latent virus has not received definition beyond the supposition that it is not of bacterial or even of visible nature. The favorite point of view is that synergistic or cooperative action takes place between two ultramicroscopic organisms, one being vaccine virus and the other a potential morbific virus, latent in the body, and roused into pathogenic power by the vaccination. Until the microscopic observations dispelled the possibility, Levaditi and his associates regarded the herpes virus as the second malevolent agent. The hypothesis of latency meets also considerable obstacles. Aside from its rather sudden appearance, it must be conceived to possess the extraordinary qualities of wide dissemination over the world and yet of capricious activity. The entire notion of latency and activation seems quite gratuitous, as no such synergistic process is known to pathology. Animal inoculations carried out with nervous tissues and cerebrospinal fluid so far have not yielded any results of a distinctive nature supporting either the activation or other theory of causation.

That vaccine virus itself may under extraordinary circumstances act as the provocative agent of encephalitis has been held by McIntosh and Turnbull and irregularly by other pathologists. It is true that McIntosh and Turnbull were successful in two instances, using a special technic of enrichment, to recover vaccine virus from the brain in fatal cases. The method of Ohtawara, based on Noguchi's testicular cultivation, does suffice to recover minimal amounts of vaccine virus from tissues, as does the method of cataphoresis recently perfected by Olitsky and Long, which separates it from tissues even when admixed with immune bodies.

One may expect, therefore, the occasional demonstration of vaccine virus in the brain of patients dying of postvaccinal encephalitis, and it becomes necessary to determine the interpretation to be put on the finding. The tendency is to consider antismallpox vaccination as a local process. In fact, as observations on man indicate and experiments on animals prove, it is a general infectious disease with, however, as a rule a single local lesion (vaccine pustule). Occasionally, as in vaccinia generalisata, the lesions become widespread and numerous. After vaccination, the virus may be recovered from the upper respiratory mucous membrane, and Gins and his associates who have recently restudied the condition experimentally have found virus after skin vaccination in rabbits in the blood, internal organs and buccal mucosa, from the second or third to the tenth day after the inoculation. The mere presence of vaccine virus in an internal organ does not indicate a local pathogenic effect. It is worth mentioning that vaccinia generalisata is not attended by nervous symptoms.[1]

The brain of the rabbit is resistant even to the direct injection of vaccine virus. It is only after adaptation by organ to organ passage that it becomes effectively pathogenic. The response then is of the nature of a stormy encephalitis, fatal in a few days, in which the lesions are more meningitic than encephalitic, and of an acute (leukocytic) character. The neurotesticular vaccine, such as produces these effects, may be made to localize in the viscera when large quantities have been injected into the veins of rabbits. Ledingham and Barratt have just summarized and described the results of such intravenous inoculations, from which it appears that, while the inner organs generally are the seat of vaccinal lesions, the brain is not. The central nervous system tends to escape focal lesions from generalized vaccinia, even when the skin, mucous surfaces and internal viscera are widely affected. It appears, therefore, to possess a protective power that the other organs possess in less degree. If the analogy of poliomyelitis may be cited, then the protective mechanism may be considered to be the choroid plexus-meningeal complex which is effective in excluding from the brain and spinal cord remarkably large quantities of the virus of that disease. It may also be able to exclude vaccine virus in a similar manner. This power is something which direct experiment can determine.

So far as known data can be interpreted with probability, vaccine virus is not the specific incitant of the encephalitis that attends vaccination. With the exclusion of this material, the etiology of the disease is left unsolved. Whether the human malady can be reproduced in animals is still undetermined. It arises in man once in several thousand vaccinations; unless, therefore, accident intervenes or some more certain method of evoking the condition experimentally can be discovered,

1. In a personal communication, Dr. C. P. Rhoads has informed me of two rabbits in which neurotesticular vaccine, after intradermal inoculation and particularly severe skin lesions, induced pronounced nervous symptoms on the sixth and eighth days, leading to death. The animals became ataxic, hypersensitive and salivating. The microscopic changes consisted of an extensive meningo-encephalitis with perivascular involvement. Gross vaccinal lesions were not observed in the other internal organs.

the search for the causation is not likely to be a brief one.

So few cases of postvaccinal encephalitis have been detected in this country that I am inclined to present the history of one such undoubted case in which I had the opportunity of studying portions of the nervous system. The case was reported originally by Fulgham and Beykirch, with the autopsy report by Harris, from St. Mary's Hospital at East St. Louis.

REPORT OF CASE

A healthy child, aged 6 years, who had not been previously vaccinated, was vaccinated Dec. 1, 1928, the skin abrasion being superficial and about one-eighth inch long.

December 8, a normal vesicle was present; the vaccination area had enlarged somewhat by the 10th, and the inflammatory area was increased. The temperature fluctuated from 99 to 102 F. The temperature was normal on the 13th, corresponding to diminution of the local inflammation. But during the night from the 13th to the 14th, headache became severe and photophobia was complained of. On the 15th the temperature was normal, but the headache persisted and there was incontinence of urine. The neck became stiffened and the reflexes exaggerated. Paralysis or convulsions did not occur, but mental lethargy was noted. The reflexes disappeared on the 16th and unconsciousness set in. The cerebrospinal fluid was not under pressure and showed 13 cells per cubic millimeter. The Kernig and Babinski signs were negative. One convulsion occurred soon after admission to the hospital, December 17. Coma became deeper, the temperature rose to 107, and death occurred, December 18. The autopsy showed a congested brain without exudate in the meninges. A thick emulsion injected subdurally into rabbits did not produce any effect. Brain substance rubbed into the scarified skin of rabbits also did not produce vesicles or any other reaction. Microscopic examination of the brain (the spinal cord was not removed) showed perivascular cellular infiltration. It was this brain tissue which, through the kindness of Dr. McCoy of the U. S. Hygienic Laboratory and the physicians reporting the case, I had the privilege of studying. Weigert's and other stains showed definite attenuation of tissue about the blood vessels of the brain, to be interpreted probably as areas, moderately severe, of demyalinization attended by cellular infiltration, such as has already been described.

ALLIED CONDITIONS

The frequent occurrence of encephalitis during the present decade has directed attention to the inflammatory state accompanying a variety of infectious diseases and processes. Such a sequel to antismallpox vaccination has already been examined here in detail, and it remains merely to point to the increasing reports of myelitis and encephalitis, separately or combined, in such diseases as measles, varicella and variola, to mention only those most commonly found in the recent literature.

There is, in fact, nothing essentially new in this connection or coincidence of degenerative and inflammatory conditions of the spinal cord and brain as part of the course taken by the exanthematous and other infections. We owe indeed to Westphal the designations of disseminated myelitis and disseminated encephalomyelitis, coined as early as 1872, and now so frequently employed to define the nervous disturbances under consideration. There is, however, little doubt that the significance and the relatively common occurrence of these accompaniments of general infectious diseases in man have come to be increasingly recognized in recent years.

The nervous complications of varicella of this kind can be passed over, because the patients who display them usually go on to recovery, so that the microscopic basis remains undetermined. The lesions of variolous myelitis or encephalomyelitis have been described by Eichhorst and more recent writers; and they agree more or less closely with the disseminated foci which Pette among other recent investigators has emphasized in connection with certain general infections, and which he and others would bring into relationship with the lesions of multiple sclerosis. The immediate source or incitant of the distributed foci is unknown, and one can only speculate as to whether they are due to the action of a primary or a secondary microbic agent or even chemical substances, since similar lesions arise in carbon monoxide poisoning. Their importance is increased also in view of the paralytic lesions, attributable to myelitic processes, occurring sometimes in the course of or following on antirabic inoculation. All these effects are infrequent, and there are but few actual statistical data available concerning them. The two instances of variolous myelitis described by Eichhorst arose among 904 cases of smallpox observed by him from 1884 to 1912.

There is, however, one exanthematous disease, namely, measles, in which nervous effects arise as a sequel, usually after the fading of the rash, with what appears to be greater frequency. And yet the wide prevalence of this malady may readily account for the observed difference. Perhaps the greater present interest in acute nervous disorders in general explains the mounting reports of encephalomyelitis as an attendant of measles.

One of the earliest of these cases to be reported is that of Barlow in 1887, and he was fortunate in the choice of a title, which was "early disseminated myelitis." F. R. Ford of the Johns Hopkins Medical School has recently collected the cases and added twelve of his own, and Wohlwill has described the microscopic changes in two cases of his own. J. H. Musser of Tulane University of Louisiana School of Medicine has also described a case in which punctiform hemorrhages were numerous. Through his courtesy I was enabled to study sections of the brain in this case. The various reports published leave no doubt that the lesions present in the brain and spinal cord of postmeasles encephalitis correspond not with those of epidemic encephalitis, but rather with those of postvaccinal encephalitis. The microscopic character is that of a combined degenerative, inflammatory and reparative process affecting the perivascular and other tissues of the white and gray matter. Myelin destruction, leading to attenuation of structure, lipoidal waste products taken up by phagocytes, glial proliferation, and even lymphoid cell infiltration all are present. The axis cylinders resist destruction in large part, and actual degeneration and loss of ganglionic nerve cells are rare. That considerable if not complete restitution is capable of taking place is indicated by the prognosis, which for life is good, although residual effects are more common than in postvaccinal encephalitis.

CONCLUSION

The decade through which we are passing has shown an increase in the number and variety of myelitic and encephalitic disorders. In part this is attributable to outbreaks of epidemic or lethargic encephalitis, and in part it can be accounted for by what appear to be unusual attendances of antismallpox vaccination, measles and other infections, by inflammations of the central nervous organs. To our present knowledge of clinical and microscopic features it is hoped that knowledge of the directly inciting events may come also to be added.

Sixty-Sixth Street and York Avenue.

THE WORK OF THE SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY *

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The office of chairman of this section is solely an honorary one, and of that honor I am duly cognizant, and accordingly most grateful. After having served three years as secretary I found the duties of chairman were exceedingly simple until I realized that the responsibility entails the choice of an appropriate subject and the delivery of an annual address.

I have read the addresses of my predecessors as far back as 1916, when I first became actively interested in the meetings of the American Medical Association. A few of the chairmen have written on purely scientific subjects, but the majority chose subjects of a problematic nature that seemed pertinent at the time. Considerations connected with the World War naturally furnished topics of preeminent interest during a portion of this period. Constructive thought was given to all those addresses and many helpful suggestions were offered, both legislative and scientific. Facing the same duty, I have some misgivings as to the interest with which the chairman's address is received at the meeting or the attention paid to it when published, since so few of the suggestions offered appear to have accomplished their purpose. Not all of the suggestions made by my predecessors, however, have been in vain. That live, hard-working group, the Committee for the Adult Deaf and the Deafened Child, was the direct result of a suggestion made by one of the chairmen. The seed that brought forth the American Board of Otolaryngology was planted at a meeting of this section and its yield has been most valuable. On the other hand, such a classic as "Transvaluations," the address delivered by Norval Pierce in 1916, apparently fell on sterile ground. The problems he discussed are little nearer to a solution now than they were then. Septal spurs are still being removed with the promise of mitigating deafness, and the treatment of conduction defects is still misunderstood.

My experience as secretary leads me to believe that there is a good deal of thoughtless indifference to all matters not of immediate practical value. This applies to the necessary routine of this section and also to the affairs of the Association. It is rightfully assumed that the American Medical Association is well governed by competent officers. Nevertheless, the maintenance of this standard requires the full cooperation of its members. I should like to stimulate the sympathetic interest of all of you in this, your great representative society. If you do nothing else, devote a few hours of your time while in Chicago to visiting your headquarters at 535 North Dearborn Street. Have a little chat with the Secretary and with the editor of THE JOURNAL. If you do this, you will come away with a new and healthier view of the workings of the organization.

In the interest of securing a more charitable attitude toward the secretary of your section, I feel justified in stressing a few of his difficulties. Let me bring to your attention some of the regulations that have given rise to confusion each year during my term as secretary. Membership in the American Medical Association does not imply Fellowship; before a member may read a paper he must identify himself with one of the sections. This does not mean that he may not present a paper before other sections, but no one may submit a paper before more than one section at the same session. At the annual meeting of the section secretaries, it is not unusual to find that a member has made application to read papers before several sections. Our own program will accommodate seventeen or eighteen papers and when it is considered that this section, in addition to the otolaryngologists, now includes some of the oral surgeons from the discontinued Section on Stomatology, it will be understood why our schedule is filled so promptly. Many excellent papers must be refused because the application is received too late and not infrequently because a paper of similar import has already been accepted. The implication of personal influence, occasionally heard, is not justified. The program, to command general interest, must be well balanced, and it is often a matter for regret that an excellent paper, perhaps comprising original research of great interest, must be sacrificed in favor of one of less merit, in order to maintain this balance. On this subject of papers, there is a definite statement in the By-Laws (chapter XIV, section 10), which reads:

> Titles of papers to be presented to the section must be in the hands of the secretary of the section at least thirty-five days before the first day of the Scientific Assembly. With the title, the writer shall submit an abstract of the paper not less than thirty or more than one hundred and fifty words in length and an estimate of the time required to read his paper.

The first letter which contains a printed slip quoting the by-law in reference to the abstract brings a prompt response from a few of the more conscientious members, but in the majority of instances four or five letters are required, the final one calling the delinquent's attention to the fact that the program is about to go to the printer and that if the abstract is not received immediately the paper cannot appear. This brings a last minute response; the abstract arrives, usually written by the physician's secretary, and containing anywhere from 150 to 600 words. The task of cutting this down to the required length then falls to the section secretary and in the final rush is not always accomplished to the author's satisfaction. Another source of occasional misunderstanding is the rule that a member residing in the city in which the meeting is to be held shall not be given a place on the program. While there is no by-law to this effect, the principle is well established by precedent and the ruling is based on sound reasoning and long experience. It is unfortunate that all members cannot participate in the liberal education that falls to the lot of the secretary.

Deserting the affairs of the secretary, I should like to bring before you a subject that I feel is of the greatest importance to the welfare of our professional work. Are our facilities for postgraduate training adequate? I should unhesitatingly answer in the negative. Most of the teaching sponsored by university medical schools is designed for the younger men and the men preparing to take up a specialty, and this is as it should be. But what about the older man who has been out for some years and feels the need of "brushing up"? What about the teachers who are unconsciously riding a hobby and imparting it to

* From the Cleveland Clinic.
* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

their students? And, of more personal interest, what about me? If I desired once or twice a year to take up some intensive study in otolaryngology, where could I obtain it? True, I might visit some of the larger clinics, but witnessing a number of operations does not fulfil my requirements. If professors and teachers in the academic branches feel the need of postgraduate work to broaden their experience, then we who owe the best service to the public that our specialty may render require the same opportunity. Few are so fortunate as to pursue all phases of their work with the same interest. Most of us have fields in which we do our best work while other fields suffer some neglect. It is easy in the pressure of the day's affairs to allow routine to become a rut. I know of no more stimulating experience than taking part in a well given postgraduate course, and this is equally true whether one is giving the course or taking it. Witness the popularity of the courses given by the American Academy of Ophthalmology and Otolaryngology each fall. Wonderful as they are, they are too short and must necessarily be inadequate to reach all who might wish such opportunities. To express my own reaction, these courses are just enough to stimulate an intense craving for more.

I propose that one of the national societies, or several of them, be invited to appoint representatives to study this problem and suggest a remedy. It is to be hoped that we may soon see established teaching facilities for giving the necessary courses in various sections of the country. I have in mind as a pattern such courses as are given at the Graduate School of Medicine of the University of Pennsylvania on bronchoscopy and esophagoscopy or those given at the Harvard University Medical School on anatomy of the nose, throat and ear, and also the summer graduate course in ophthalmology and otolaryngology that has been given in Denver the past seven years.

Should this need appeal to you as urgently as it does to me, I hope that some immediate action may be taken. Otherwise, I must count this as one more chairman's address presented merely to fulfil a custom.

I wish to express my appreciation of the efficient labors of Dr. Gabriel Tucker, to whom this program is entirely due. This is Dr. Tucker's first year as secretary of this section. Because of my past experience in that office, I should have been able to assist him in the preparation of the program, but on account of illness I was unable to do so, and he has carried on alone. I am sure that you will agree with me that the task has been most efficiently performed.

Physicians and Science.—There is a strong feeling abroad among people—you see it in the newspapers—that we doctors are given over nowadays to science; that we care much more for the disease and its scientific aspects than for the individual. I don't believe it, but at any rate, whether that tendency exists or not, I would urge upon you in your own practice to care particularly for John and Elizabeth, as George Eliot says—but I will not add, especially for Elizabeth—but to care more particularly for the individual patient than for the special features of the disease. . . . Dealing, as we do, with poor suffering humanity, we see the man unmasked, exposed to all the frailties and weaknesses, and you have to keep your heart soft and tender lest you have too great a contempt for your fellow creatures. The best way is to keep a looking-glass in your own heart, and the more carefully you scan your own frailties the more tender you are for those of your fellow creatures.—From an address by Osler, quoted by Cushing, Harvey: Sir William Osler, vol. 1, p. 489.

SPLENECTOMY IN THROMBOPENIC PURPURA

REPORT OF THREE CASES *

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It is my purpose in this paper to emphasize the importance of splenectomy as a therapeutic measure in idiopathic thrombocytopenic purpura in childhood. This demands a definition of the disease, a brief review of the literature, the presenting of three cases not previously reported, and a discussion of etiology, diagnosis, prognosis and treatment as influenced by splenectomy.

Rosenthal [1] has given a most elaborate and complete classification of all the purpuras, together with a discussion of the blood pictures in the various forms. For purposes of routine work it may be justifiable to reduce this to its simplest possible form, as shown in table 1. The specific means employed for differentiating between the thrombopenic and the nonthrombopenic groups, as well as between the idiopathic and the purely symptomatic purpura, will be considered in the discussion following the case reports.

TABLE 1.—*Classification of Purpura*

Thrombopenic	
1. Bleeding time increased 2. Platelets decreased 3. Coagulation time normal or slightly increased 4. Nonretractile clot	Idiopathic—"purpura hemorrhagica"; "essential thrombopenia" Secondary—a symptom of leukemia, aplastic anemia, pernicious anemia, other severe anemias, acute infections
Nonthrombopenic	
1. Bleeding time normal 2. Platelets normal 3. Coagulation time normal 4. Blood clot normal	Idiopathic—"simplex," arthritic ("rheumatica"), visceral ("Henoch's") Secondary—a symptom of acute infections, drug poisoning, allergy and venous stasis

TABLE 2.—*Sex, Age and End-Results in all Available Cases*

	Children		Adults			
Age Incidence						
Years	0–8	8–16	16–30	30–40	40–50	Over 50
Cases	22	26	47	9	7	6
Sex Incidence	Female 31, Male 17		Female 67, Male 17			
Percentage						
Good results	70.7		60.2			
Improved	16.8		13.3			
Slightly improved	4.2		7.7			
Died	8.3		18.8			

Although thirteen years has elapsed since Kaznelson's first reported case of successful splenectomy and six years since he laid down the indications [2] for the operative treatment of idiopathic thrombopenic purpura, it is only within the last few years that its great therapeutic value has received proper recognition. In 1916 Whipple [3] was able to collect and tabulate the end-results in eighty-one cases. He found that 61 per cent of these patients had been either completely relieved or sufficiently relieved to be classified as having obtained good results. Two years later Spence,[4] again reviewing the literature, tabulated 101 cases (including

* From the Department of Pediatrics, University of California Medical School.

* Read before the Section on Diseases of Children at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

1. Rosenthal, Nathan: The Blood Picture in Purpura, J. Lab. & Clin. Med. **13**: 303-321 (Jan.) 1928.
2. Kaznelson, P.: Indications for Splenectomy in Purpura Hemorrhagica, Wien Arch. f. inn. Med. **7**: 87-116, 1923.
3. Whipple, A. O.: Splenectomy as a Therapeutic Measure in Thrombocytopenic Purpura Hemorrhagica, Surg. Gynec. Obst. **42**: 329-341 (March) 1926.
4. Spence, A. W.: The Results of Splenectomy for Purpura Haemorrhagica, Brit. J. Surg. **15**: 466-499 (Jan.) 1928.

all except five reviewed by Whipple [3]). The percentage of good results was 68 in this series, while the mortality was 20 per cent. In a careful review of the literature through 1928, I have been able to add forty-four cases, bringing the total number of reported splenectomies in thrombopenic purpura to 150. Table 2 shows the age and sex incidence together with the summarized end-results in all cases in which data were available.

Spence [4] has given adequate surveys of thirty-two children in whom splenectomy was performed. There were ten boys and twenty-two girls, whose ages ranged from 5 to 16 years. The duration of the disease varied from four days to eleven years. In this group twenty-one patients were relieved of all symptoms, eight were definitely improved, though still showing some minor purpuric tendencies, and three died. The results in sixteen additional cases have been outlined in table 3. It is to be noted that fourteen of these patients have been relieved of all symptoms, while even the one who died of intestinal obstruction and postoperative pneumonia was already showing relief from the thrombopenia. A glance at table 2 shows that there have been only four deaths in the whole group of forty-eight children [5] whose spleens have been removed. This gives a mortality of only 8.3 per cent, with good results in at least 70.7 per cent. It should be noted that these figures are distinctly better than the corresponding percentages for adults. The suggestion is made that the prognosis is more favorable when the spleen is removed early in the course of the disease. A study of the three cases reported here as well as of the pathogenesis of the disease lends further support to this argument.

TABLE 3.—*Results of Splenectomy in Sixteen Cases Reported in the Literature and in the Present Paper*

Reference	Age	Sex*	Duration of Disease	Platelets Before Splenectomy	Platelets After Splenectomy	Duration of Follow-Up	End-Results
Beer: Ann. Surg. **84**: 549 (Oct.) 1926	13	♂	4 weeks	20,000	550,000	5 months	Good
Falconer and McLachlan: Lancet **2**: 493 (Sept. 4) 1926	10	♀	3 months	"Very few"	?	2 years	Good
Fitz-Hugh: S. Clin. North America **5**: 1257 (Dec.) 1925	8	♀	5 months	6,000 30,000	273,000 250,000	2 months	Good
Gregory: Brit. J. Dis. Child. **25**: 180 (July-Sept.) 1928	7	♂	2 years	47,700	150,000 120,000	1 year	Good
Harris: Canad. M. A. J. **16**: 384 (April) 1926	11	♀	5 years	12,500	1,028,000 500,000	3 months	Good
Hodges: Virginia M. Monthly **53**: 582 (Dec.) 1926	15	♀	1 year	12,600	1,624,000 200,000	14 months	Good
Kerlin: New Orleans M. & S. J. **79**: 58 (July) 1926	14	♀	8 years	30,000	160,000 148,000	2 months	Good
Koster: M. J. & Rec. **125**: 97 (Jan.-Feb.) 1927	7	♀	1 year	15,000	196,000	6 months	Good
Leriche: Bull. et mém. Soc. nat. de chir. **53**: 1132 (Nov. 5) 1927	5	♂	2½ years	20,000	110,000	6 days	Died (pneumonia and intestinal obstruction)
Reuben and Claman: Arch. Pediat. **45**: 84 (Feb.) 1928	8	♂	14 days	14,000	480,000	1 year	Good
Reuben and Claman: Arch. Pediat. **45**: 84 (Feb.) 1928	6½	♂	1 year	50,000	487,000	4 months	Good
Reuben and Claman: Arch. Pediat. **45**: 84 (Feb.) 1928	9½	♀	9 days	40,000	40,000	2 months	Good
Washburn: reported here	15	♀	7 years	112,000	81,000 4,000	3½ years	Slight improvement
Washburn: reported here	4½	♂	9 months	4,000 13,000	1,175,000 224,000	18 months	Good
Washburn: reported here	4	♂	3 months	22,000	2,163,000 480,000	5 months	Good

* In this column, ♂ denotes male; ♀, female.

REPORT OF CASES

CASE 1.—M. L., a school girl, aged 15 at the time of splenectomy, had her first symptom when she bled excessively following the removal of her tonsils at the age of 8 years. Purpuric spots were noted following even the slightest trauma during the next two years. From the tenth to the fourteenth years she had intermittent bleeding from the nose and gums, associated with spontaneous purpura. The first severe hemorrhage came with the onset of the menses at the age of 14½ years. She was admitted to the University of California Hospital in February, 1926, at the time of her fifth menstruation because the loss of blood continued to be excessive in spite of repeated transfusions and three roentgen-ray treatments over the spleen. She was well developed and nourished but very pale, and the only positive physical signs were oozing from the nose and gums, purpura, petechiae, profuse menstrual flow and a barely palpable spleen. Examination of the blood showed red blood cells, 2,500,000; hemoglobin, 25 per cent (Sahli); white blood cells, 4,400; polymorphonuclears, 55 per cent; myelocytes, 1 per cent; small lymphocytes, 16 per cent; large lymphocytes, 4 per cent; large mononuclears, 24 per cent; bleeding time, sixty-four and half minutes;[6] coagulation time, fourteen and one half minutes (with paraffined tube, normal eight to twelve minutes); clot, nonretractile.

Since four transfusions gave only temporary relief with the skipping of one menstrual period, splenectomy was advised. April 12, 1926, the spleen was removed by Dr. Homer Woolsey, immediately after transfusion. The spleen was slightly enlarged but removed without difficulty as there were no adhesions. Microscopic examination of the spleen showed slight fibrosis, wide separation of the trabeculae, and sinusoids dilated with unusually large numbers of red corpuscles. Four days after operation, oozing was noted from the wound and also from the gums. Seven days after operation, profuse menstruation set in and was controlled only by transfusions.

Unfortunately, the blood was not again examined until five months after operation, when the bleeding time was ten minutes, the platelets numbered 81,000, and the clot was nonretractile. Since profuse menstruation represented the only serious loss of blood, the patient was given two courses of roentgen-ray treatments over the ovaries. The cessation of the menses came in May, 1927, one year after splenectomy. During that year she had required five transfusions. During the second year after operation intermittent bleeding from the gums persisted, but she needed only one transfusion and her general health was excellent. During the third year, ending in May, 1929, there has been occasional oozing from the gums but never enough blood lost to require transfusion. As her general health continues to be good she has been classed as "slightly improved" by splenectomy, in spite of the persistence of the thrombopenia. The course of the blood changes is shown in chart 1.

CASE 2.—R. Y., a boy, aged 4½ at the time of splenectomy, showed the first symptom of the disease nine months before splenectomy, in April 1927, when he had a sudden shower of purpuric spots. Successive crops of these continued to appear for the next four months. In August, 1927, he was admitted

5. Since the completion of this paper, the author's attention has been called to a report of two additional cases by Stewart (J. M. Soc. New Jersey **26**: 116 [Feb.] 1929).

6. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Special Reference to the Part Played by the Blood Platelets, Arch. Int. Med. **10**: 445-469 (Nov.) 1912.

to the University of California Hospital because of severe and uncontrolled epistaxis of two day's duration. The physical examination on admission showed the following positive signs: (1) pallor; (2) skin diffusely covered with purpuric spots and petechiae; (3) bleeding from the gums and nasal mucosa; (4) marked dental caries and infection; (5) hypertrophied and obviously infected tonsils and adenoids with enlarged cervical lymph nodes and (6) bilateral otitis media. Cultures from nose, throat and ear discharges showed a predominance of hemolytic streptococci. Examination of the blood revealed: red blood cells, 4,800,000; hemoglobin, 75 per cent (Sahli); white blood cells, 21,700; polymorphonuclears, 49 per cent; eosinophils, 4 per cent; basophils, 2 per cent; myelocytes, 8 per cent; lymphocytes, 36 per cent; large mononuclears, 1 per cent; platelets, 28,000; bleeding time, over forty-five minutes (artificially stopped); coagulation time, twenty minutes (with paraffined tube, normal eight to twelve minutes); clot, non-retractile.

In spite of the control of hemorrhage with repeated transfusions, the quieting down of the acute upper respiratory tract infections, and a normal temperature and leukocyte count, the thrombopenia persisted (chart 2). However, it seemed possible that the purpura might be secondary to the streptococcus infection. Consequently, it was decided to attempt a complete clearing up of the foci before advising splenectomy. By giving the patient transfusions immediately before operation, the day after, and again four days after operation, the tonsils, adenoids and infected teeth were all safely removed under one anesthetic.

During the next three months the patient's general health was excellent; there was no evidence of any infection left in the upper respiratory tract and he had only occasional purpura without severe hemorrhages. But the platelets fell to 4,000 and the blood clot showed no tendency to retract. Splenectomy was advised early in December, but before the child's parents would give their consent he had another phase of acute hemorrhages necessitating three transfusions. The acute hemorrhages had stopped by the end of December.

Jan. 11, 1928, Dr. Edwin Bartlett removed a spleen of normal size, encountering considerable difficulty because of firm adhesions. In spite of a long operation the patient made a perfect postoperative recovery without the slightest evidence of bleeding. He received one transfusion immediately before and one during the operation but has never needed any more.

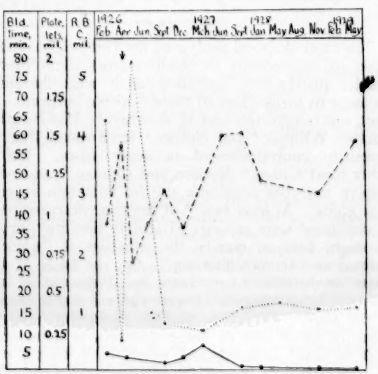

Chart 1.—Platelets, red blood cells and bleeding time in case 1. In the charts the solid line denotes platelets; broken line, red blood cells; dotted line, bleeding time. The arrow shows when splenectomy was performed.

The spleen showed a mild diffuse fibrosis with the sinusoids dilated and filled with an unusually large number of red corpuscles. Since splenectomy the patient's general health has been good and he has never shown the slightest evidence of bleeding during the seventeen months of the follow-up period. The curve of the platelet counts before and after operation as well as during subsequent observations is well shown in Chart 2.

CASE 3.—H. L., a boy, aged 4 years at the time of splenectomy in January, 1929, showed the first symptom of the disease, Sept. 25, 1928, when the mother noted that he was covered with a purpuric rash from head to foot. When admitted to the University of California Hospital, three days later, he was acutely ill, covered with purpuric spots and petechiae, and actively bleeding from the nose and gums. During the first three days he presented the classic picture of a fulminating purpura hemorrhagica in which death might be a matter of

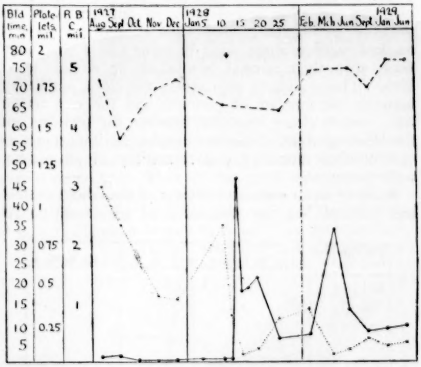

Chart 2.—Platelets, red blood cells and bleeding time in case 2.

hours. Blood was lost by bowel and urine as well as from the nose and mouth in spite of two transfusions. The acute hemorrhages stopped on the third day following another transfusion. The blood showed red blood cells, 3,600,000; hemoglobin, 80 per cent (Sahli); white blood cells, 9,000; polymorphonuclears, 60 per cent; myelocytes, 5 per cent; eosinophils, 8 per cent; lymphocytes, 28 per cent; platelets, 26,000; bleeding time, over thirty minutes (artificially arrested); coagulation time, eight minutes (paraffined tube, normal eight to twelve minutes); clot, nonretractile. During the next two and one half months he had one exacerbation of the bleeding, relieved by one transfusion, and he was never entirely free of purpura and petechiae. No foci of infection were found and the red blood count and hemoglobin percentage came up to normal, but the thrombopenia persisted (chart 3). Splenectomy was performed, Jan. 7, 1929, by Dr. Henry Searls, who found a spleen of normal size tied down by firm adhesions. The pathologic report stated that the malpighian corpuscles were prominent with hyperplastic germinal centers and that the intersinusoidal reticular tissue showed increased thickness. An interesting finding was the presence of one well walled-off tubercle in the spleen. (There has never been any clinical evidence of tuberculosis).

The extraordinary postoperative rise of the platelets to 2,163,000 on the fourth day is shown in chart 3, together with the whole course of the blood changes. During the five months that has elapsed since operation he has shown no evidences of purpura and his general health has been good.

ETIOLOGY

The acceptance of splenectomy as a justifiable therapeutic procedure in idiopathic thrombopenic purpura has stimulated many workers to help to define more clearly the various aspects of the disease.

It is not possible in so brief a presentation to mention all those who have contributed to the study of its etiology. The work of Duke [6] on the close relationship of the platelets to the bleeding time and clot retractility has been corroborated by many authors. The rise in the platelet count following splenectomy has been

studied recently by Evans,[7] who found similar rises occurring after splenectomies for such different causes as trauma, acholuric jaundice and splenic anemia. This prompted Dawbarn, Earlam and Evans [8] to study the reaction of the platelets following fractures, parturition and various major surgical operations. They were able to demonstrate similar, though not identical, curves for platelet increases after all these conditions. From this it would appear that the reaction of the platelets following splenectomy in purpura is of the greatest significance, since their failure to show a marked increase must point to some factor that interferes with their normal production or circulation or both. These authors also stress the close parallelism between the number of platelets and the clot retractility—much closer than that between the platelets and the bleeding time. This emphasizes the importance of careful observation of clot retractility in all patients with purpura.

Koster,[9] in an extensive review of the whole subject, has pointed out the evidences of increased phagocytosis of platelets by endothelial cells, of an increased permeability of the capillary walls, and of a dysfunction in the formation of platelets. Morrison, Lederer and Fradkin [10] have called attention to the possible significance of accessory spleens as a cause for incomplete relief following splenectomy. Many authors have noted both perisplenitis and an increased fibrosis within the spleen. On attempting to put all these factors together one might assume some unknown primary cause—possibly an infection or resultant toxin which affects the spleen first (and perhaps other lymph tissue later) and secondarily causes: (1) a disturbance in the production of normally functioning platelets; (2) an increased destruction of platelets, and (3) an increased permeability of the capillary walls. What part may be played by the endothelial cells in the last two results is still an open question.

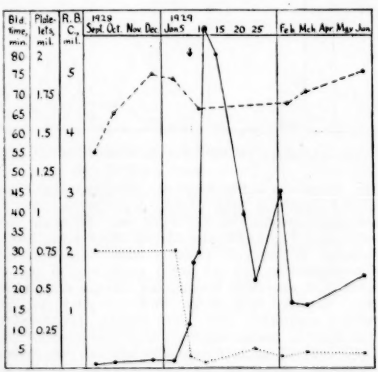

Chart 3.—Platelets, red blood cells and bleeding time in case 3.

DIAGNOSIS

Giffen,[11] Reuben and Claman,[12] Gregory,[13] Koster [9] and others have stressed the prime importance of a correct diagnosis as the chief indication for splenectomy in idiopathic thrombopenic purpura. In the presence of purpura, especially if associated with bleeding from mucous membranes as well as subcutaneously, there are four cardinal observations that should usually clinch the diagnosis of a thrombopenic purpura. These are: (1) an increased bleeding time; (2) a normal or slightly increased coagulation time; (3) a decreased platelet count, and (4) a soft, nonretractile blood clot. In the three cases reported here, the bleeding times were taken by Duke's [6] method; the coagulation was observed by taking from 4 to 5 cc. of blood into a smoothly paraffined test tube of 12 to 14 mm. diameter, and the platelets were counted both directly in a counting chamber and indirectly by obtaining their proportion to the red corpuscles on stained smears. In determining the coagulation time it is of extreme importance that the method used should make possible accurate observations of the nature of the resulting clot, since clot retractility is so closely related to the number of platelets.

When the diagnosis of thrombopenic purpura has been established, one must still rule out the various diseases in which this may be a symptom (table 1). The ruling out of leukemia and the severe anemias usually requires a careful study of the blood. The problem of differentiating between purpura secondary to infections and the true idiopathic type requires a painstaking search for foci of infection, their removal if found, and careful observation of the blood changes thereafter. This is brought out in case 2. When no possible cause can be found, as in case 3, a diagnosis of idiopathic thrombopenic purpura may be made.

TREATMENT

The most skeptical analyst of the forty-eight reported cases of splenectomy in children must admit that the results justify this operation as a wise therapeutic measure in many cases of thrombopenic purpura. Is it ever contraindicated and if so when? Many authors, notably Whipple [3] and Spence,[4] have stated that it is definitely contraindicated in acute cases. On the other hand Giffen,[11] Reuben and Claman [12] and others believe that the acuteness of the condition is not a safe guide. At least two [14] of the four deaths reported in childhood were in cases of acutely bleeding purpura. It might help to clarify the situation if "acute" is defined as "acutely bleeding." On the basis of their onset or duration many cases are diagnosed as acute purpura hemorrhagica, as were cases 2 and 3 reported in this paper. There can be little doubt that a splenectomy in either one of these children, if done at the time of acute hemorrhages, would have been a much greater risk than during the relatively quiescent phase of the disease. Fortunately, most cases show an intermittence in the severity and frequency of the purpuric

7. Evans, W. H.: The Blood Changes After Splenectomy in Splenic Anemia, Purpura Hemorrhagica, and Acholuric Jaundice with Special Reference to Platelets and Coagulation, J. Path. & Bact. **31**: 815-832 (Oct.) 1928.

8. Dawbarn, R. Y.; Earlam, F., and Evans, W. H.: The Relation of the Blood Platelets to Thrombosis After Operation and Parturition, J. Path. & Bact. **31**: 833-873 (Oct.) 1928.

9. Koster, H.: Essential Thrombocytopenic Purpura: Etiology, Pathogenesis, Pathognomonic Symptoms, Diagnosis and Operative Treatment, M. J. & Rec. **125**: 23 (Jan. 5), 97 (Jan. 19), 167 (Feb. 2) 1927.

10. Morrison, M.; Lederer, M., and Fradkin, W. Z.: Accessory Spleens: Their Significance in Essential Thrombocytopenic Purpura Hemorrhagica, Am. J. M. Sc. **176**: 672-681 (Nov.) 1928.

11. Giffin, H. Z.: Splenectomy, Surg. Gynec. Obst. **45**: 577-585 (Nov.) 1927.

12. Reuben, M. S., and Claman, L.: Splenectomy in Acute Thrombocytopenic Purpura Hemorrhagica, Arch. Pediat. **45**: 84-97 (Feb.) 1928.

13. Gregory, H. H. C.: Case of Splenectomy for Purpura Hemorrhagica, Brit. J. Child. Dis. **25**: 180-184 (July-Sept.) 1928.

14. Leriche, M. R.: Splenectomy for Chronic Purpura, Bull. et mém. Soc. nat. de chir. **53**: 1132-1133 (Nov. 5) 1927. Hermann, E.: Fatal Genital Hemorrhage in Hemorrhagic Purpura, Zentralbl. f. Gynäk. **46**: 1648 (Oct. 14) 1922.

manifestations. Transfusions, if given in sufficient quantity and often enough, will usually tide the patient over an acute episode, allowing the splenectomy to be done at a more advantageous time. In the rare cases in which transfusions fail to arrest the hemorrhage, nothing can be lost by attempting operation, which may be a life-saving measure even in the presence of acute hemorrhage (this is illustrated in case 1 of the series reported by Reuben and Claman [12]). Before splenectomy enough blood should be taken from the donor for two transfusions, one immediately before operation and, if needed, one during or immediately after. Citrated whole blood is entirely satisfactory in stopping hemorrhage and easier to use in times of emergency.

PROGNOSIS

The expected end-results of splenectomy in children with idiopathic thrombopenic purpura may be seen from a study of table 2. Although these results are most encouraging, it must be borne in mind that sometimes figures do lie. One cannot study the literature without wishing for more complete data as to the blood changes and more prolonged and careful follow-up records. The painstaking work of such authors as Whipple,[3] Spence [4] and Williamson [15] in summarizing end-results is of the greatest value in the study of prognosis. Until more is known concerning the cause of this disease, there is no other way in which we can gain a safe impression as to the adequacy and permanence of splenectomy as a therapeutic measure.

SUMMARY AND CONCLUSIONS

The literature on splenectomy in idiopathic thrombopenic purpura in childhood contains reports of forty-five cases. Three more have been added by this paper.

Of these forty-eight patients now on record, 70.7 per cent showed good results; 16.8 per cent were definitely improved; 4.2 per cent were slightly improved, and 8.3 per cent died.

The establishment of a correct diagnosis is the chief indication for splenectomy.

The existence of acute hemorrhage is the chief contraindication, and even this may be overruled if repeated transfusions fail to arrest the bleeding.

It is suggested that the outlook may be improved by splenectomy performed earlier in the course of the disease.

ABSTRACT OF DISCUSSION

DR. OSCAR REISS, Los Angeles: Dr. Washburn's review and his cases have helped to strengthen my belief in splenectomy, provided, however, that an undisputable diagnosis can be established. Relative to the establishment of this diagnosis, I believe, first of all, that a more dependable method of platelet counting must be evolved. We must also learn a qualitative method of setting platelets, for in the nature of these platelets probably lies the key to a better understanding of this situation. Because of the great difficulty in differentiating this condition from aplastic anemia, marrow puncture should always be considered before splenectomy is undertaken. I wish to voice a thought regarding infection as a factor in thrombopenic purpura, largely because in recent years I have, at autopsy, seen hidden foci of infection brought to life, foci which gave no evidence of their existence during life. I cannot help but believe that indiscoverable foci of infection at times play a part in this condition, and that in other instances a past infection has so altered the blood forming situation as to pave the way for a later manifestation of so-called idiopathic thrombopenic purpura.

15. Williamson, B.: Recent Advances in the Diagnosis and Treatment of Purpura Hemorrhagica, Arch. Dis. Childhood **1**: 39-49 (Feb.) 1926.

PROLAPSE OF PEDUNCULATED TUMORS AND GASTRIC MUCOSA THROUGH PYLORUS INTO DUODENUM

ROENTGENOLOGIC DIAGNOSES *

EUGENE P. PENDERGRASS, M.D.
PHILADELPHIA

Pedunculated tumors of the stomach and gastric mucosa that prolapse through the pylorus are readily diagnosed by roentgen examination, and a sufficient number of these cases have been studied to justify one in describing certain characteristic appearances, the presence of which will greatly aid in the diagnosis.

PATHOLOGY

Pedunculated tumors that prolapse through the pylorus into the duodenum may be papillomas, adenomas, fibromas or polyps. Most of the cases that have been studied in my series have been either papillomas or polyps. They arise from the mucosa near the pylorus and vary in diameter from 1 to 2 cm. The pedicles may be short or long; most frequently, they measure

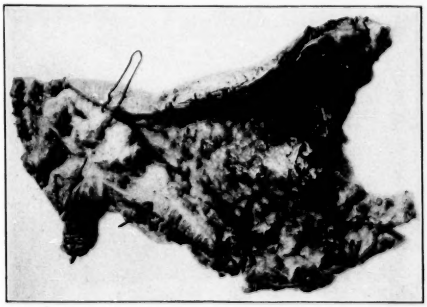

Fig. 1.—This patient had a partial gastrectomy, the portion of the stomach which was removed being shown here. The gastric mucosa in the pyloric region had prolapsed into the duodenum and on the distal portion there was an ulcerated papilloma. The hairpin separates the papilloma from the mucosa. The thickness of the wall of the stomach was due to infiltration from carcinoma.

approximately 2 cm. in length. The tumors may be multiple or single. Large pedunculated tumors are found in the stomach but these do not prolapse.

Pedunculated tumors are prone to ulcerate and frequently cause a severe secondary anemia that may simulate the pernicious type. Anemia has been very severe in six cases that I studied, and these were diagnosed pernicious anemia by competent observers. These tumors are not infrequently referred to as benign tumors, but in my series malignant changes have been found in seven proved cases and have been suspected in several others. The frequency with which I have encountered malignant changes makes me feel that all of these tumors should be regarded as potentially malignant and treated accordingly.

The gastric mucosa which prolapses through the pylorus into the duodenum occurs as a redundant collar of mucous membrane from the pyloric region. It may ulcerate and give rise to a severe secondary anemia.

* From the Department of Roentgenology, University of Pennsylvania Hospital.

* Read before the Section on Radiology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

Eliason [1] stated that he believed the origin of pedunculated tumors was due primarily to a low grade inflammation of the mucosa which resulted from a chronic irritation (physical, nutritional, functional, chemical or bacterial). This chronic inflammation causes a hypertrophy of the mucosa which is increased mechanically by the peristaltic contractions of the stomach and the pressure of the gastric contents as they are forced on their way to the pylorus. This results in the local hypertrophy being forced toward the pylorus, and as the tissue continues to grow it does so at the expense of the stalk or pedicle, which is stretched by the engulfing food being forced past and around it. Later, when the pedicle is sufficiently large and long enough to do so, the growth is carried into the duodenum by a peristaltic wave and may produce a typical ball valve syndrome attack of pain. Lately Brunn and Pearl [2] reported that Menetrier in 1888 first advanced the premise that chronic gastritis was the cause of polyposis.

I have had two cases in my series that would support the premise of Eliason. In these two cases, there was a long collar of mucous membrane prolapsing through the pylorus, and, in addition, a polyp had developed from the prolapsing mucosa in one case and a papilloma in another (fig. 1). These conditions are most striking and may be roughly compared to the hemorrhoid that develops in the rectum, which may be pedunculated, may ulcerate and may undergo malignant degeneration.

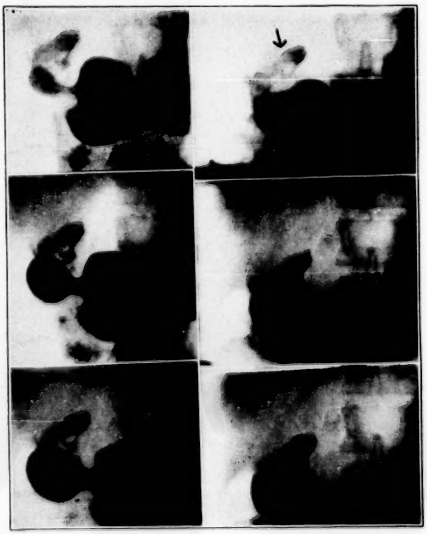

Fig. 2.—Central filling defect caused by a prolapsing polyp. The irregularity of the bismuth shadow superimposed on the duodenal cap is due to the contents in the second portion of the duodenum.

As has been stated, anything that may cause chronic gastritis may give rise to this condition. I have observed that the lesion is found more frequently after the age of 40 and in individuals who have a history of chronic alcoholism or who overeat. Duodenal stasis caused by congenital veils or the ligament of Treitz tends to cause a low grade gastritis which may subsequently develop into prolapsing mucosa or pedunculated tumor. Duodenal stasis has been observed in a number of my cases.

Fig. 3.—Stasis in the jejunum with multiple filling defects which were diagnosed as polyps. All of these lesions were confirmed at operation. The patient was an Italian woman with a long alcoholic history.

Pedunculated tumors of the stomach are sometimes associated with pedunculated polyps in the jejunum (figs. 2 and 3).

CLINICAL OBSERVATIONS

Pedunculated tumors of the stomach and hypertrophied gastric mucosa prolapsing through the pylorus do not give any characteristic syndromes. A clinical diagnosis was made in only two cases in my experience, and in these cases there was a typical ball valve type of pain. One patient felt something moving in the stomach.

The frequency and the importance of anemia have been recorded by Miller,[3] Moore,[4] Balfour [5] Eusterman and Senty,[6] Vulliet [7] and many others. These patients frequently have occult blood in the gastric contents and in the feces.

Three patients in my series had anemia severe enough to simulate a primary anemia.

1. Eliason, E. L.: Pendergrass, E. P., and Wright, V. W. M.: The Roentgen-Ray Diagnosis of Pedunculated Growths and Gastric Mucosa Prolapsing Through the Pylorus: Review of the Literature, Am. J. Roentgenol. **15**: 295-322 (April) 1926.

2. Brunn, H., and Pearl, F.: Diffuse Gastric Polyposis-Adenopapillomatosis Gastrica, Surg. Gynec. Obst. **43**: 559-591 (Nov.) 1926.

3. Miller, T. G.: Polypoid Carcinoma of the Stomach, J. A. M. A. **76**: 229-231 (Jan. 22) 1921.

4. Moore, A. B.: Benign Tumors of the Stomach from the Roentgenologic Point of View, J. A. M. A. **89**: 368-370 (July 30) 1927.

5. Balfour, D. C.: Lesions of the Stomach and Duodenum, S. Clin. North America **6**: 1175-1183 (Oct.) 1926. Balfour, D. C., and Henderson, E. F.: Benign Tumors of the Stomach, Arch. Surg. **85**: 354-359 (March) 1927.

6. Eusterman, G. B., and Senty, E. G.: Benign Tumors of the Stomach, Surg. Gynec. Obst. **34**: 5-15 (Jan.) 1922.

7. Vulliet, Maurice: L'invagination gastroduodénale: Contribution à l'étude des tumeurs benignes de l'estomac, Rev. méd. de la Suisse Rom. **47**: 22-52 (Jan. 25) 1927; **46**: 918-934 (Dec. 25) 1926.

As stated, a number of the pedunculated growths undergo malignant degeneration. In my cases achlorhydria was a constant finding, but Brunn and Pearl [2] have found achlorhydria when there was no evidence of a malignant condition.

ROENTGENOLOGIC CONSIDERATIONS

The important diagnostic procedure in these conditions is the roentgen examination of the gastrointestinal tract.

Pedunculated tumors of the stomach prolapsing through the pylorus into the duodenum give the following fluoroscopic and roentgenographic evidence:

1. The filling defect is not easily demonstrated at the fluoroscopic examination. When seen it is sometimes possible to palpate the lesion, so that the defect may be seen in the stomach and subsequently in the duodenum. This phenomenon was observed by Rigler.[8]

2. The peristalsis is not interfered with unless the tumor has undergone malignant degeneration and infiltrated the muscular coat of the stomach. I have observed this in one case. The peristalsis may be normal, hypo-active or hyperactive, depending entirely on the tone of the gastric musculature and the amount of obstruction at the pylorus.

3. The stomach usually shows a six hour residue, which may be slight or considerable, depending entirely on the amount of obstruction at the pylorus.

4. A central filling defect in the duodenum is seen

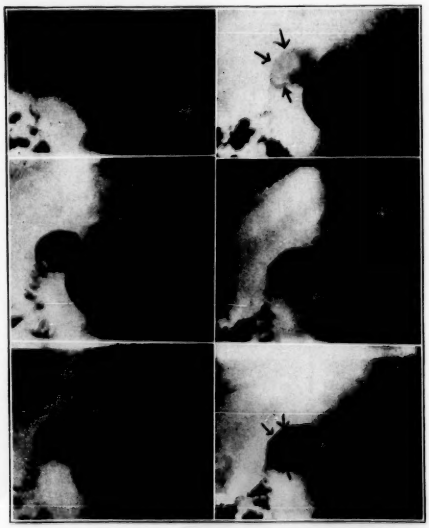

Fig. 4.—This patient had a severe secondary anemia which was diagnosed as pernicious anemia until the roentgen diagnosis of pedunculated tumor was made. Attention is called to the central filling defect in the duodenum, with the multiple trabeculation of the defect (indicated by arrows), and to the absence of any pyloric deformity. At operation, three small pedunculated polyps were found, one of which was ulcerated and bleeding.

in the roentgenograms made in the prone and in the right oblique positions. The filling defect may be circular or irregularly circular. Sometimes the defect is trabeculated, indicating multiple tumors. The filling defect is surrounded by a thin film of opaque mixture and, from this, small trabeculations of the opaque mixture subdivide the central filling defect when the lesion consists of small multiple tumors (fig. 4). I

Fig. 5.—First case of prolapsing mucosa in our series. Note the wide pyloric space to the prolapsing mucosa obliterating the gastric canal.

have never noted the defect in the roentgenograms made in the erect posture. This is probably due to the lack of filling of the duodenum in some cases, and the presence of the tumor in the stomach in others when the duodenum is filled. In the prone and right oblique postures, the duodenum is more dependent and therefore favors the prolapse of the tumors.

5. No defect is noted in the stomach in the pyloric region. This is an important sign in differentiating prolapsing tumors from prolapsing mucosa.

PROLAPSING MUCOSA

All of the phenomena noted in pedunculated tumors are observed in this condition and, in addition, there is a defect in the pyloric region of the stomach which varies in direct proportion to the obliteration of the gastric canal.

1. If there is a large collar of prolapsing mucosa there will be a wide pyloric space or filling defect (figs. 5 and 6).

2. If only a small collar is prolapsing, there will be a less dense opaque shadow in the pyloric region as compared to the density of the body of the stomach (figs. 7 and 8).

3. If the amount of prolapsing mucosa is less than in 1 and more than in 2, the pyloric defect will consist of longitudinal striations similar to those seen in hypertrophied rugae of the stomach or when the stomach is only slightly filled and there is some pressure on the spine.

DIFFERENTIAL DIAGNOSIS

Prolapsing mucosa should be differentiated from pyloric and duodenal adhesions. In three cases in this series, fairly typical fluoroscopic and roentgenographic

8. Rigler, L. G.: Roentgen Observation of Benign Tumor of Stomach Prolapsing Through the Pylorus, Am. J. Roentgenol. **20**: 529-530 (Dec.) 1928.

evidences of prolapsing mucosa were mistaken for what proved to be a congenital veil involving the pylorus and duodenum. On reviewing the roentgenograms in the light of conditions found at operation, I was unable definitely to differentiate the pyloric deformity, but the duodenal defect of adhesions is not a typical central deformity.

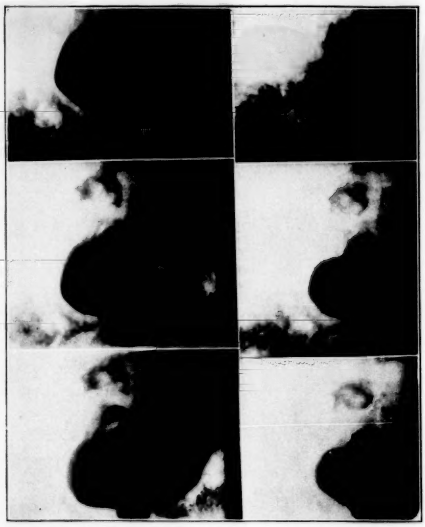

Fig. 6.—Central filling defect in the cap which simulates the defect caused by prolapsing tumors, the differential signs being the pyloric deformity. Compare with figure 3.

Pedunculated prolapsing tumors cannot be confused easily with other lesions, except possibly a tumor of the head of the pancreas which can cause a pressure defect of the duodenum that is similar to that of a prolapsing tumor.

Three cases that I studied have been diagnosed as duodenal ulcers by other roentgenologists. The first prolapsing tumor that was ever recognized in our clinic was diagnosed duodenal ulcer, and it was only through the instructive cooperation of Dr. Eldridge L. Eliason of the University Hospital that it has been possible to diagnose this entity with some degree of precision.

Duodenal ulcer can be easily differentiated from the prolapsing tumors in that there is no central filling defect in ulcer, and there is often a spastic incisura opposite the ulcer defect.

COMBINATIONS OF LESIONS

I have been able to diagnose a combination of lesions in three cases; in two there was a pedunculated tumor associated with the prolapsing mucosa; in the third case there was a pedunculated tumor and a duodenal ulcer.

When a pedunculated tumor is associated with a prolapsing tumor there are two central filling defects, the proximal filling defect being due to the prolapsing mucosa and the distal one to the prolapsing tumor. In the case in which an ulcer was associated with pedunculated tumor, the ulcer (fleck) was seen at the fluoroscopic examination and a small crater was demonstrable on the roentgenogram in addition to the filling defect of the tumor.

In prevous contributions on this subject I [9] have stressed the advisability of the surgeon opening the stomach before stating that the tumor is not present. The palpating fingers frequently fail to detect the lesion even when it is quite large.

SUMMARY

In prolapsing mucosa and pedunculated tumors the lesions tend to ulcerate, bleed and cause severe secondary anemia. The tumors frequently undergo malignant degeneration.

The important diagnostic procedure is the roentgen examination of the gastro-intestinal tract, which reveals the characteristic appearance of this condition.

In every case of unexplained anemia, a careful roentgen study of the gastro-intestinal tract should be made.

ABSTRACT OF DISCUSSION

DR. K. D. ALLEN, Denver: After having been coached by Dr. Pendergrass in Philadelphia on this subject, I returned to Denver and in our office found two cases diagnosed as pernicious anemia, both of which turned out to be cases of bleeding papilloma. One of the patients, a physician, was operated on, and a papilloma, which had just begun to be malignant at the base, was removed. He recovered entirely from the anemia. The other patient refused operation, but the lesion was undoubtedly a pedunculated papilloma. There are two points which Dr. Pendergrass taught me but did not mention here, which seem to me to be of help in diagnosing these cases: 1. If the patient is allowed to lie in the right oblique posture for a time prior to the plates being made, there is more likelihood of showing the defect. 2. The duodenal defect is absent when the patient assumes the erect posture. If Dr. Eliason were here

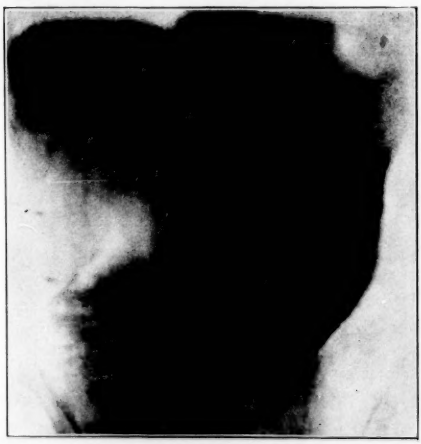

Fig. 7.—Prolapsing mucosa causing a considerable six hour gastric residue.

9. Eliason, Pendergrass and Wright (footnote 1). Pendergrass, E. P.: The Roentgen Ray Diagnosis of Pedunculated Growths and Gastric Mucosa Prolapsing Through the Pylorus, Bull. Moses Taylor Hosp. 1: 1-9 (March) 1928.

to discuss the paper he would say it was easy to miss these cases at operation. I have seen Dr. Eliason slip the tumor from the duodenum into the stomach, then pick up the duodenum and demonstrate absence of a pathologic condition. Then he picked up the pyloric end of the stomach and felt nothing there because the tumor had again slipped back into the duodenum. With this very explicit and easy way of finding these lesions, one should, after sending the report to the surgeon, follow the case to the operating table, and suggest that the surgeon pick up the duodenum and the pyloric ends of the stomach at the same time and feel back and forth, or he may miss the lesion that has been diagnosed.

DR. W. H. SARGENT, Oakland, Calif.: I have had several cases lately in which I have been embarrassed to have the surgeon report the absence of tumor. I should like to ask whether the surgeon has had any difficulty in demonstrating these cases. We have found blood in the stool in the absence of symptoms that would suggest carcinoma or ulcer, and that

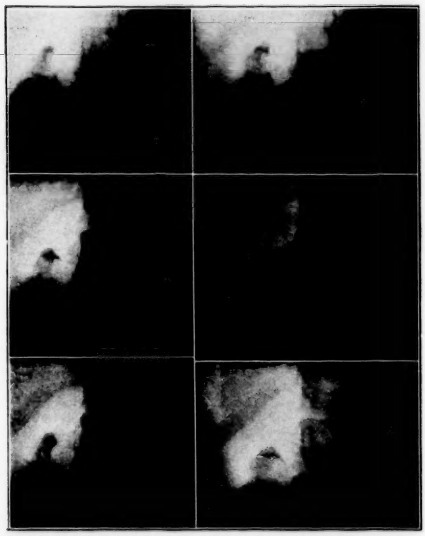

Fig. 8.—Decreased density of the bismuth shadow in the pyloric region as compared to the body of the stomach. Attention is called to the central filling defect of the duodenal cap. Compare with figure 3.

has been of considerable assistance. Another point is that we have noticed a complete absence of spasm of the duodenum, which I think has been quite characteristic, at least in those cases that we have seen.

DR. EUGENE P. PENDERGRASS, Philadelphia: It is extremely difficult to find these tumors unless the stomach is opened and explored. I had this experience, a short time ago, in a case which had been diagnosed as gallbladder disease clinically, and in which we had diagnosed a pedunculated tumor. My advice was asked as to what should be done. I could visualize how the gallbladder, pressing on the duodenum, could cause the filling defect that we had diagnosed as a pedunculated tumor, but I had the courage of my conviction and asked the surgeon to open the stomach, although he could not palpate anything. A pedunculated tumor was found when the stomach was opened. Therefore, I believe that when these lesions are diagnosed we owe it to the patient to have the surgeon open the stomach, even in the absence of palpable evidence of the tumor, because they do tend to ulcerate and cause severe anemia, and to undergo malignant changes.

CYSTITIS EMPHYSEMATOSA

II. REPORT OF A SERIES OF CASES IN WOMEN *

RALPH G. MILLS, M.D.
ROCHESTER, MINN.

Cystitis emphysematosa, if one may judge from the few scattered reports in the literature, is a rare lesion of the urinary bladder. It is not to be confused with putrefactive processes or with the invasion of tissues by the organisms of gas gangrene. All cases as yet noted have occurred in females; such occurrence is equally applicable to the animal and to the human species, a fact that has been given some prominence in the various speculations as to its etiology. A recent report [1] gives the details of three cases in men, thus eliminating from further consideration the apparent sex selectivity of the condition. In view of the many unanswered questions connected with this disease, it seems advisable to place on record all available cases, thus permitting later analysis of the data.

REPORT OF CASES

CASE 4.—An unmarried woman, a teacher, aged 34, registered at the Mayo Clinic, June 29, 1925, had had an appendectomy performed elsewhere in 1912, and a tonsillectomy in 1920. She stated that for the last twelve years she had experienced frequency and burning on urination, nocturia and backache. Two years previous to admission to the clinic she had had an attack of abdominal pain, with nausea and vomiting, which had lasted six hours. One year later she had experienced very severe pain in the right lumbar region which had radiated to the groin. Since then two similar attacks on the left side had occurred. During these attacks, the amount of urine had been definitely reduced. The pain often had lasted for eight or ten hours and morphine had been required for its relief. She had been confined to bed for two weeks after each attack. Roentgenologic and cystoscopic examinations, made elsewhere, May 17, 1924, revealed the presence of a large stone in the pelvis of the left kidney.[2] The patient had lost 15 pounds (6.8 Kg.) during the previous year. She had been under treatment for anemia as long as she could remember.

On examination at the clinic the liver was palpable and there was marked anemia. The combined renal function test with phenolsulphonphthalein gave a result of 40 per cent. Roentgenologic examination revealed an obstruction at the pylorus. The result of the Wassermann reaction was negative, and the urine contained a few pus cells. The hemoglobin registered 66 per cent, and the leukocytes numbered 6,400 in each cubic millimeter of blood, of which 78.5 per cent were polymorphonuclear leukocytes. The total acidity of the gastric content, in terms of tenth-normal sodium hydroxide, was found to be 58, of which 36 represented free acid. The urea in the blood was estimated as 20 mg., the carbon dioxide combining power as 62.5, and the chlorides as 570 mg. in each hundred cubic centimeters of blood plasma.

Ureteral catheterization was performed July 1, and a pyelogram was made. This confirmed the diagnosis of stone in the left kidney. A differential test with phenosulphonphthalein indicated that the function of both kidneys was good, although that of the left was better than that of the right. Note was not made of any alteration of the walls of the bladder. The stomach was markedly dilated and gastric lavage was performed twice daily. July 3, it was noted that 500 cc. of retained fluid

* From the Section on Pathologic Anatomy, the Mayo Clinic.
* This article is abbreviated in THE JOURNAL by the omission of several of the illustrations. The complete article appears in the author's reprints.
* Read before the Section on Pathology and Physiology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

1. Cases 1, 2 and 3 were reported in a previous article: Mills, R. G.: Cystitis Emphysematosa: I. Report of Cases in Men, J. Urol., to be published.
2. The physician who made this examination reported to the author that the wall of the bladder was normal in appearance.

was removed from the stomach by means of a tube. Dextrose, 15 per cent, was given by proctoclysis in amounts of 1,500 cc. each day after July 4. July 7, left pelviolithotomy was performed under ether anesthesia; the operation lasted fifty minutes. Through an abdominal incision, the stomach was found to be very large and atonic, but pyloric obstruction could not be found.

The urine became scanty in amount on the fourth postoperative day and, later, bloody. Left parotitis appeared, but this partly

Fig. 1.—Gross appearance of the bladder in case 4. The mucosa of the bladder has been raised into papillary, foamy-appearing blebs, and the size of the organ was markedly reduced. The trigon as well as the wall of the bladder was involved.

subsided. The pulse and temperature rose, and gastric retention was marked. The abdomen became distended. Decapsulation of both kidneys was performed, under light ether anesthesia, on the evening of July 18, and 500 cc. of dextrose, 20 per cent, was given intravenously. The urea in each hundred cubic centimeters of blood was found to be more than 200 mg., the content of sugar 0.110 mg., the carbon dioxide combining power 28 per cent by volume, and the chlorides 660 Gm. The blood culture taken before the last operation was reported negative. Death took place with symptoms of renal insufficiency, July 18.

Necropsy was performed on the embalmed body two hours after death. Bronchopneumonia was present in both lungs; there were numerous adhesions in the appendical region, with torsion of the ileum, producing obstruction and consequent dilatation of the jejunum, duodenum and stomach, graded 2. Both kidneys contained numerous scars resulting from healed pyelonephritis. Cystitis emphysematosa was found. Other abnormalities included terminal vegetative mitral endocarditis, complete duplication of the right ureter, and fatty changes in both liver and heart.

The gross specimen of the bladder (fig. 1) was not observed by me in the fresh condition; the following description refers to the organ after four years' preservation in formaldehyde. The drawing is a reconstruction of the original condition, which has been well preserved in much of its detail. The mucosa of the bladder was raised into papillary, foamy-appearing blebs, and the capacity of the entire organ was markedly reduced. The entire mucosa, including the trigon but not the urethra, was thrown into wrinkles and folds, in the prominences of which were hemorrhagic areas and numerous vesicles. The hemorrhages were small and petechial, apparently lying between the vesicles but not grossly invading any of them. There was a general edematous appearance of the mucosa lying between the vesicles, which were closely packed, and which varied in size from 2 mm. to less than 1 mm. The dome of the bladder was less affected than the base. The lesion near the dome appeared to shade off gradually, the vesicles becoming smaller and more scattered. The wall of the bladder was definitely thickened and on section appeared to be honeycombed, the change affecting chiefly the submucosa. Grossly, the muscle layer was not involved. Changes were not noted externally.

In the next four cases presented here the results of microscopic examination of the wall of the bladder were essentially identical, and the details given following case 7 are applicable to all. All special conditions encountered are identified with the case to which they belong.

CASE 5.—A schoolgirl aged 12, registered at the Mayo Clinic, Feb. 2, 1921, had had pertussis at the age of 6 months, measles at the age of 3 years, and influenza at the age of 5 years. Since 1918, she had suffered from occasional attacks of severe abdominal pain, preceded or followed by diarrhea, pain and tenesmus. These attacks usually had lasted about six hours. During the attacks of diarrhea, cramps in the feet had occurred with abduction and internal rotation. The skin had become discolored at the slightest injury. The patient's mother, who had died of tuberculosis when the patient was a baby, had been similarly affected.

During the examinations, the following facts were elicited: The urine contained 12 Gm. of albumin for each liter, together with hyaline and granular casts and a little blood. The erythrocytes numbered 4,320,000 and the leukocytes 12,900 for each cubic millimeter, of which the neutrophils comprised 28.5 per cent, the small lymphocytes 62.5 per cent, and the large mononuclear leukocytes 6.5 per cent. The bleeding time at the first reading was two minutes and, a few days later, six minutes. The platelets numbered 110,000. The Wassermann reaction was

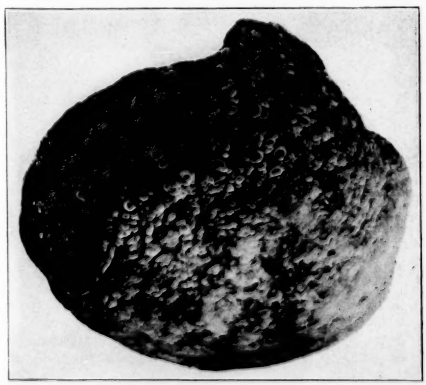

Fig. 2.—Gross appearance of the bladder in case 5. The organ has been turned wrong side out, thus throwing the vesicles into greater prominence. The gas content of the vesicles is plainly visible.

negative. The Pirquet skin test was positive after forty-eight hours. The fundi of the eyes were reported normal. Later a blood count showed the total leukocytes to be 13,800 for each cubic millimeter, of which the polymorphonuclear leukocytes comprised 60 per cent and the small lymphocytes 31 per cent.

Tonsillectomy and adenoidectomy were performed March 11, 1921. The patient was considered a poor operative risk and was given the minimal amount of ether for anesthesia. During the following week in the hospital the urinary conditions

improved, and the amount of albumin was found to be 9 Gm. for each liter. New purpuric spots did not appear and the patient was dismissed, March 18, in a reasonably good condition.

The patient was admitted to the hospital in an emergency condition Aug. 4, 1926. For the most part, she had been well since last she had been treated at the clinic. Urinary symptoms and edema had not been present. She had had six attacks of abdominal pain such as those previously described, all within the preceding six months. Cramping of the fingers and feet had occurred at intervals, especially during the winter, so that she had been known to fall as a result of the stiffness. Two weeks before her return she had not felt quite so well, but she had not had any special disturbances until August 2. She then had vomited dark-colored gastric contents, and thereafter "coffee-ground" material frequently was vomited. She had had several convulsions. Stupor gradually had deepened. The breath had a distinct uremic odor and the perspiration was odoriferous. The gums were bleeding. The blood urea was found to be 456 mg. The erthrocytes numbered 1,960,000 and the leukocytes 35,300. The hemoglobin was recorded as 36 per cent. Intravenous injections of dextrose, 5 per cent, were given in amounts of 250 cc. The patient failed rapidly and died August 7.

Fig. 6 (case 5).—Several vesicles are shown, one of which is filled with coagulated fluid. The surrounding tissue is edematous and contains scattered blood and leukocytes. Slightly reduced from a photomicrograph with a magnification of 150 diameters.

Necropsy was performed on the embalmed body three hours after death. The principal conditions found were chronic glomerulonephritis, each kidney weighing 35 Gm., bilateral confluent bronchopneumonia, of the terminal type, with left pleural effusion (300 cc. of fluid), ascites (300 cc. of fluid), and cardiac hypertrophy (weight of heart 189 Gm.). There were numerous purpuric spots over the body, and cystitis emphysematosa was present. Edema of the extremities and dependent portions was marked.

On gross examination of the bladder (fig. 2), the mucosa was observed to be elevated into distinct vesicles. These are slightly more prominent in figure 2 than they were originally because the organ was turned inside out for photographing. The vesicles varied in size from 3 mm. to less than 1 mm. in diameter. They were arranged irregularly in groups, the largest in the center, smaller ones lying immediately adjacent to it, and an occasional very small one in the intervening tissues. A portion of the dome of the bladder was relatively unaffected, as well as the trigon and ureteral orifices. Petechial hemorrhages were scattered irregularly over the surface of the wall, partly in that portion in which the vesicles occurred, and extending over into the apparently normal areas. There were a few hemorrhages on the trigon. The urethra was not affected.

CASE 6.—A woman aged 41, admitted to the Mayo Clinic, Aug. 29, 1927, had been subject to fainting attacks for many years. During the first week in August she had begun to have headaches, which had become progressively worse but which had improved after the extraction of a tooth. August 22 progressive drowsiness began. The headaches had recurred daily. She had had nausea four days before admission and, on the subsequent days, vomiting. The vomiting was said to have been spontaneous and without effort. Genito-urinary symptoms had not been present. Occasionally she had been compelled to get up during the night to urinate. During the last year the menses had been somewhat irregular.

During examination it was found that there was definite slowing of muscular action of the left side of the body. There was also slight subjective diminution in sensation over the same region, and slight astereognosis. Both optic disks were choked. Roentgenologic examination disclosed areas of thickening of the skull near the vault. The urine and blood were essentially normal, and the Wassermann test was negative. A pelvic tumor was noted.

Exploration and decompression with biopsy was performed, September 10, for extensive cellular hemorrhagic glioma of the right frontal lobe. The operation lasted two hours and was performed under ether anesthesia. A specimen of urine obtained the same day contained a moderate amount of albumin. On two occasions before operation and once afterward the patient was given intravenous injections of dextrose, 20 per cent, in amounts of 500 cc., or 10 per cent in amounts of 1,000 cc. She returned from the operating room in poor condition. The blood pressure was too low to register. She never regained consciousness and died ten hours after the operation.

Necropsy was performed ten hours after death on a body that had been embalmed within two hours post mortem. The principal abnormalities included glioma of the right frontal lobe of the brain, multiple small leiomyomas of the uterus, cyst of the left ovary, cholelithiasis (fifteen stones), and cystitis emphysematosa. An adhesion was observed between the bladder and the anterior abdominal wall for a distance of about 5 cm. above the symphysis. This was considered to be congenital and associated with incomplete obliteration of the urachus.

The bladder contained 300 cc. of clear, straw-colored urine at the time of examination. Grossly, the bladder appeared very different from those previously described (fig. 3). The walls of the bladder were, for the most part, smooth and normal. About the urethral opening were found numerous, very small, gas-containing vesicles, many of them less than 1 mm. in diameter. They were arranged in folds that extended onto the trigon, the depressions between them appearing free. This

Fig. 11 (case 7).—Multiple vesicles under the surface of the mucosa of the bladder, the epithelium of which has almost entirely disappeared. It is still present in traces in the cleft shown in the middle of the photograph and extends deep into the section. This is an artefact due to the bulging of the surface produced by the vesicles. Small bands of muscle appear in the lower portion of the photograph. Slightly reduced from a photomicrograph with a magnification of 15 diameters.

condition entirely surrounded the urethral orifice. The lesion seemed to be spreading radially over the trigon in the form of streaks and lines, extending more toward the left ureteral opening than toward the right, but not reaching either one. There was some congestion in the affected region, but distinct hemorrhages had not occurred. Lateral to the right ureteral orifice there was a distinct hemorrhagic area about 2 cm. in diameter, in which a few very small vesicles were to be seen. They were not found in any other part of the bladder. The wall of the bladder, in the affected areas, was slightly thickened, and this change involved only the superficial layers. Nothing abnormal was observed externally except the adhesion noted previously.

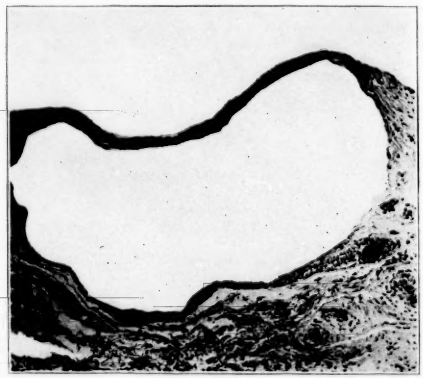

Fig. 13 (case 7).—A vesicle lying just under the surface, the epithelium of which has been lost. A blood vessel forms the lower edge of the vesicle. The vessel is large at the lower right hand corner of the photograph, and markedly narrowed where it comes into more intimate contact with the vesicle. Slightly reduced from a photomicrograph with a magnification of 45 diameters.

CASE 7.—A woman, aged 57, entered the Colorado General Hospital, Denver, March 19, 1926, with a history of occasional attacks of nausea and vomiting associated with pain in the right, and occasionally the left, shoulder, for the past six years. At such times she had often become jaundiced. She frequently had sick headaches. She had not observed that the eating of any special kind of food had precipitated these attacks, but she had an intolerance to certain kinds of food. On a few occasions she had noticed that the vomitus was tarry in appearance and thought that the stools may have been similar in character. The last attack had occurred six weeks previously and was typical of those already described. She had not been well since.

On the roentgenologic examination, a diagnosis of gallstones was made. The erythrocytes were moderately reduced and the hemoglobin was recorded as 68 per cent (Dare). The Wassermann reaction was negative. A study of the chemical constituents of the blood gave the following results: sugar, 120 mg. for each hundred cubic centimeters; nonprotein nitrogen, 78 mg.; urea nitrogen, 58 mg.; uric acid, 5.08 mg.; creatinine, 2.72 mg., and calcium, 0.56 mg. The material in the stomach after an Ewaltl test meal showed free acid 10 and total acidity 20; it did not contain blood. The urine contained finely granular casts and albumin graded 4+; the specific gravity was 1.010.

March 26, 1926, the gallbladder was removed and drainage instituted. The pathologic diagnosis was subacute cholecystitis and cholelithiasis. The immediate postoperative condition was good. Typical signs of tetany developed, but medication by calcium chloride gave relief. By April 4, the patient's condition had become worse and the pulse rate had risen and was of poor quality. Anasarca was pronounced, the renal function was poor, and the patient was transferred to the medical service for treatment of nephritis. The respirations became more shallow and the patient died April 6. Solution of dextrose had not been administered intravenously.

Necropsy was performed twenty-one hours after death. The body had been kept in the refrigerator but had not been embalmed. The conditions found included general peritonitis, acute nephritis, parenchymatous degeneration of the liver and cystitis emphysematosa. *Bacillus coli* and *Streptococcus hemolyticus* were cultivated from the heart's blood, peritoneal exudate, wound, and pericardial and pleural cavities. In the abdomen was also found an unidentified sporulating anaerobe. At some previous time the appendix and both tubes and ovaries had been removed.

Grossly, the mucosa of the bladder, particularly in the posterior and basal portions, was elevated by gas-containing vesicles varying in size from 1 to 2 mm. in diameter. These were associated with irregular petechial hemorrhages, and apparently some edema. The trigon was slightly affected, particularly at the upper border. The wall of the bladder was definitely thickened, especially in the parts in which the vesicles occurred. Externally the appearance was normal.

MICROSCOPIC EXAMINATION

Microscopic examination revealed that the epithelium was absent over most of the surface of the bladder; traces of it were found in only a few depressions. The epithelium in case 4 was entirely absent, while much of it was preserved in portions of the wall of the bladder in case 7. In those instances in which intense inflammation of the underlying tissues was present, or in which the formation of vesicles was very marked, the loss of the epithelium was greatest.

The degree of cellular infiltration was varied. In case 4, leukocytes were abundant in superficial foci, and were associated with marked necrosis of the tissues. Such an area is shown in figure 4, in which a mass of calcified material was surrounded by a zone of necrosis, in the periphery of which the leukocytes occurred. These had also infiltrated the tissues lying next to the vesicles at a little greater depth. There had been some deposition of fibrin in certain regions, which helped to form the walls of the vesicles (fig. 5). This suggests the presence of definite hemorrhage in the region, although none was found in this immediate vicinity. In other sections it was seen to a slight extent. In case 5 the walls were very thick; much of the increase in thickness was produced by edema. This is shown in figure 6,

Fig. 14 (case 4).—One large and two smaller vesicles, the walls of which have been more or less infiltrated with leukocytes. Some of these now lie loose in the lumen. A remnant of endothelium is seen in the cleft in the tissues in the lower left corner of the photograph. Slightly reduced from a photomicrograph with a magnification of 75 diameters.

in which one of the vesicles has been filled with fluid. The more superficial portions of the wall showed the same change, together with necrosis and cellular increase (fig. 7). In case 6 there was very little cellular infiltration; that which was present was of the round cell type. In figure 8 this is shown in the vicinity of a small vesicle that had formed in very dense tissue.

Definite hemorrhage was found in all cases, although it was less marked in case 6. Blood vessels were frequently found to be dilated, especially in the vicinity of the vesicles. This point is shown in figure 9 (case 6). Changes have been noted occasionally in the blood vessels themselves. In figure 10 (case 4) there was thickening of the intima of the arterial walls. This was out of proportion to the arteriosclerotic changes observed in other parts of the body. The unusual number of leukocytes in the lumen suggests that an inflammatory reaction was taking place in the vicinity.

The vesicles varied in number and size, as well as in the relations they bore to the various elements of the tissues in which they had developed. They were large and numerous as in figure 11 (case 7), or single and small as in figures 8 and 9. Figure 11 (case 7) shows them very close to the surface, distending the tissues internal to the layers of the muscle, whereas figure 12 (case 5) illustrates the occasional separation of the layers of the muscle. The degree of compression exerted by the vesicle on the adjacent tissue is suggested in figure 13 (case 7). The blood vessel may be traced along the edge of the vesicle and the lumen has been markedly reduced. Adjacent sections showed that this is a reality rather than an artefact produced during the preparation of the tissues.

The extent to which the lymphatic system participated in the formation of the vesicles is uncertain. Traces of cells more or less in a state of degeneration could be seen here and there throughout the tissues. Their configuration was often suggestive of the remnants of the endothelial lining of lymphatics, such as that seen in figure 14 (case 4). Dilated lymphatic spaces occasionally were seen which had a possible connection with the vesicles. Many of the vesicles, however, had no evident relation to the lymphatic system, unless the latter had been so altered as to be unrecognizable.

More or less iron-containing pigment was demonstrated in sections from all four cases. This was interpreted to mean that hemorrhage had taken place at some previous time and that the extravasated corpuscles had undergone dissolution and almost complete removal. The vascularity of the tissues in the wall of the bladder would favor the removal of such remains, and it was somewhat of a surprise to find the pigment left behind. An example of this pigment is shown in figure 8.

COMMENT

The desquamation of epithelium, more or less complete in all four cases, is probably of little significance in the pathogenesis of cystitis emphysematosa. It was found to be more marked than is usual for the walls of normal bladders. The influence of autolysis on the wall of the bladder in the presence of urine could not be evaluated, but it was felt that it had much to do with the removal of the epithelium. Possibly epithelium that had been loosened or degenerated by underlying acute or chronic disease would desquamate more readily than would that on the walls of a normal bladder. More likely, it was connected with the inflammatory reaction, which has seemed to be a constant factor in all cases in which this lesion has been examined thus far. No characteristic type of degeneration was observed in the remnants of epithelium occasionally seen in the deeper crevices of the surface. Epithelium has not been found to form the wall of any vesicle; such a condition is well known under the name of cystitis cystica. The loss of the epithelial lining of the bladder has not been associated with the rupture of any vesicle by virtue of the dissolution of this layer of tissue. The loss of epithelium from any surface is associated with a decrease in the resistance of the underlying tissues to infection, and this factor may be important in the ultimate solution of the etiologic factors involved in the production of this disease. If bacteria produce the vesicles, they might be those responsible for the initial cystitis or possibly those that became engrafted on a preexisting infection.

The presence of hemorrhage appears to be a constantly associated phenomenon. In some cases it has been more prominent than in others, but it has been demonstrated in all cases thus far examined. A given vesicle may be associated with a gross hemorrhage, or it may not. Hemorrhages of the bladder are often observed at necropsy, but formation of vesicles in addition is unusual. It is difficult to understand how a hemorrhage could be in any way involved in the production of vesicles, although this idea has been advanced as an explanation of colpitis emphysematosa, which in some respects it resembles.

Inflammation of the wall of the bladder was present in all four cases. How long this had existed could not be determined. In case 4, there was evidence that some degree of urinary infection had been present for at least one year, and probably for an additional year. Fourteen months before the patient died, pyelography revealed evidence of renal stone, but the mucosa of the bladder was said to be normal. Cystoscopic examination performed eighteen days before death did not reveal anything unusual in the walls of the bladder, although attention at the time was centered on the ureteral openings, and it is not stated that a complete study of the mucosa was made. In case 5 the symptoms were essentially those of nephritis, and no direct examination of the bladder was indicated. Case 7 presented symptoms of terminal nephritis, but even these were absent in case 6. Definite data are still lacking as to the length of time the emphysematous condition may have been present before death.

There are still many unanswered questions connected with this pathologic entity, its etiology and pathogenesis, its relation to the terminal events of life, with the insidious invasion of bacteria, and its real importance in clinical medicine and urology. Continued study of cases which are made available gradually will eliminate nonessentials and bring to light those factors of importance. It is imperative that all who have occasion to observe lesions in the bladder watch for cystitis emphysematosa and distinguish it from cystitis cystica, which, as in case 6, it may very closely resemble. It is hoped that this contribution will stimulate a careful search for this condition, especially during life, but also at necropsy.

SUMMARY

The four cases of cystitis emphysematosa in women, with the case histories and essential observations at necropsy, provide a basis for comparison and analysis, making it possible to detect important etiologic factors.

Cystoscopic examination had been performed in one patient only eighteen days before death, without the presence of vesicles being detected, if they existed at the

time. Two other patients had nephritis, and the fourth was without urinary symptoms of any kind. The presence of marked evidence of cystitis, both acute and chronic, and of hemorrhage, both recent and old, indicates conclusively that cystitis had existed for a considerable period before death. It would be impossible to decide whether the gas vesicles developed early or late in the inflammatory process.

Cystitis emphysematosa should be considered a pathologic entity, but it remains to be determined whether or not it is a clinical condition, and if so of what significance. It seems to be different in many essential features from colpitis emphysematosa and from pneumatosis cystoides of the intestine, both of which, in many respects, it resembles. It is a definite emphysematous condition of the wall of the bladder, associated with cystitis and hemorrhage, and therefore the name appears to convey the proper conception of the lesion.

ABSTRACT OF DISCUSSION

DR. W. C. HUEPER, Chicago: Dr. Mills pointed out that cystitis emphysematosa occurs not only in females but also in males. Dr. Mills has the first observations on record, in this respect. Cystitis emphysematosa apparently is not as rare as is indicated in the literature. The fact that several cases are reported by certain authors would indicate that this condition, when it is not much advanced, is quite frequently overlooked. One theory concerning the etiology regards cystitis emphysematosa as a purely postmortem process. The histologic observations are against that theory. The presence of lymphocytic infiltrations, giant cells, and so forth discredits this theory. Another theory supports the neoplastic origin of this condition, although the histology does not support this conception. The third theory is the bacteriologic theory that the condition is due to gas formation by bacteria in the tissues. There is one point that we have to consider in this connection. The gas that is present in these vesicles consists mainly of oxygen and not of carbon dioxide, at least in the intestinal variety. That would not be in favor of the bacterial origin of the condition. The fourth etiologic conception of the condition is a purely mechanical one: Gas is pressed through small crevices in the mucosa of these organs. This conception applies mainly to the intestinal variety, in which a majority of the cases were associated with stenosis, with small ulcerated lesions. I do not think that we can apply this conception very well to cystitis emphysematosa. I saw the condition in a female dog which was killed for experimental purposes. When the bladder was examined, we found this peculiar condition. The epithelium in the bladder was well preserved. There were no lesions present so far as the histologic examination of the bladder was concerned. The etiology is still dark. I think the bacteriologic investigation will give us more information in the future, because it was possible to reproduce the same condition by injection of gas-forming organisms into the intestinal tract.

DR. J. A. MCINTOSH, Memphis, Tenn.: I should like to offer a suggestion in connection with the blebs found in such bladders as the author describes. One should puncture one of the blebs, hold a lighted match nearby, and determine whether it contains air or ignitible gas. The latter is of bacterial origin, generally *Bacillus welchii*.

DR. RALPH G. MILLS, Rochester, Minn.: I would call attention particularly to a point that I raised in a former paper; namely, that it seems advisable to separate this condition of the bladder from that of the vagina and of the intestines. There seems to be enough evidence fundamentally and anatomically and, perhaps, bacteriologically, to justify this separation. Enough cases of this type should be placed on record to make possible a comparison of one case of this condition of the bladder with other similar cases. Then it would be unnecessary to complicate the situation by comparing cases in which the bladder is affected with cases in which other organs are the seat of the trouble. In some respects the condition, when it affects the bladder, resembles analogous conditions at other sites, but in other respects it is markedly different.

RECENT WORK ON CANCER*

CHARLES F. GESCHICKTER, M.D.
BALTIMORE

A review of the work now in progress in European cancer laboratories, based on a recent tour of investigation in Europe of four months' duration furnishes one of the most reliable means of estimating the present status of cancer research. Work in America and in Europe in the field of malignant disease has become quite diversified but falls readily into the three fields of experimentation as to the cause, the diagnosis and the cure of cancer.

WORK ON THE CAUSE OF CANCER

The elaboration of new experimental methods is responsible for most of the recent advances in regard to the etiology of malignant disease. Experimentation with carcinogenic agents, the use of tumor filtrates and work on the metabolism of tumor cells constitute the major lines along which the problem of the cause of cancer is now being attacked. The oldest method of experimentation with carcinogenic agents is still being investigated by Dr. Ernest L. Kennaway at the Cancer Hospital Research Institute in London. The most recent work of this laboratory has been an attempt to explain carcinoma in the bladder of dye workers. Their experiments aimed at producing bladder tumors in mice through the use of dyes have not been successful and they are not in a position to report any new observations.

The transplantation of tumors by cell-free filtrates is at present a popular and widespread method of experimentation. This work has been recently stimulated through the reports of Murphy at the Rockefeller Institute, who stated that he had produced the Rous sarcoma in fowls by an extract of normal testicle, and of Luther Heidenhain in Worms, Germany, who stated that he had obtained carcinoma in rats from a filtrate of human chondrosarcoma. The experiments of neither one of these investigators have been confirmed. Leitch at the Cancer Hospital Research Institute in London obtained a Rous sarcoma similar to that of Murphy by the injection of normal pancreas extract into a fowl, but when he and Murphy both failed to repeat their own experiments they were ready to accept the view that contamination with the Rous sarcoma filtrate was responsible for these chicken tumors. At present a cell-free filtrate prepared from the Rous sarcoma of chickens is the only filtrate that will transmit a tumor from animal to animal with fairly constant results. There is therefore beginning to be much skepticism as to the importance of these chicken experiments with regard to malignant disease in human beings.

The work of Warburg in the Kaiser Wilhelm Institute for Biology, in Berlin, on the metabolism of tumor cells has introduced a new experimental method in the study of the etiology of cancer. Warburg's observations in regard to the unique magnitude of the glycolysis of malignant tissue have given rise to much controversy. Bierich in Hamburg and Crabtree in London both believe that such metabolism is not specific for cancer tissue. Warburg's conclusions rest on the finding of large quantities of lactic acid in cancer tissue by means of a manometric method. He explains this increased lactic acid production by the abnormal

* Read before the Baltimore City Medical Society, Nov. 15, 1929.
* From the Garvan Cancer Research Laboratories, Surgical Pathology Laboratory, Johns Hopkins Hospital and University.

ability of cancer to split sugar to lactic acid under both anaerobic and aerobic conditions.

Although some workers in Europe are turning to the idea that cancer begins as a general systemic disease, no experimental support has been found in favor of this theory.

Brüda at Graz, Austria, working in Pfeiffer's clinic, has tried to relate resistance or nonresistance to cancer to the reticulo-endothelial system. To this end he injected foreign particles (such as india ink and trypan blue) intravenously into mice in order to saturate the reticulo-endothelial system and throw it out of function. Such animals, he concluded, were more susceptible to tumor transplants than the controls. Charles Sternberg of Vienna could not confirm his results.

These four lines of investigation in the field of the cause of cancer—irritating agents, tumor filtrates, metabolic studies of the cancer cell, general systemic factors—all embrace separate theories as to the origin of malignant growths. The first, experiments with carcinogenic agents, emphasizes some outside injurious agent, such as tar or dyes, and supports the chronic irritation theory of Virchow. Irritation has been proved as a cause of cancer but not as the only or determining cause. The negative results of Kennaway in trying to find something specific in these injurious agents would seem to indicate that the scene of the crime (the cancer site) and not the weapon (tar) is the clue to the criminal.

The work on tumor filtrates implies either an infectious theory (a filtrable virus) or a growth ferment. Neither of these theories has adequate support. The chicken is the only evidence and the Rous sarcoma of this animal, because of its many wandering cells rather than its duplication of the histology of a fixed organ, is not a representative example of malignant growth.

The metabolic studies of cancer, while most enlightening and encouraging, are at present beset with difficulties and shortcomings. The work is being performed on living tumor cells, and the difficulty with the measurements is to determine exactly what is being measured. Despite his calculations and attempts to make allowances therefor, Warburg's tumor slices are only partially active tumor. Only the periphery of a malignant tumor with its young proliferating cells functions as cancer. The malignant cell is short lived and only at one part of its growth cycle are its reactions typical or representative. In trying to measure such cells at the tumor margin, the serious complications of infiltrating young normal cells, present as a defensive reaction, are introduced. The tissue culture of living human tumors, when perfected, will be instrumental in overcoming these difficulties.

All the metabolic experiments have had the shortcoming of comparing a malignant tumor arising in one type of tissue with normal tissue of a different and unrelated organ. Carcinoma of the breast can be compared metabolically only with the tissue in which it arises or to which it metastasizes readily. To compare a rat sarcoma of the flank with a piece of human liver is fundamentally fallacious.

The attempt to find a general systemic factor for malignant disease is handicapped at present rather than aided by current conceptions of immunology. Although most of the cancer workers of today are unwilling to admit for cancer an infectious origin, most of them in this field are tacitly couching their conceptions of the resistance or nonresistance to cancer in terms of immunology borrowed from the field of bacteriology.

A general survey of all these lines of work on the nature of malignant growths seems to justify the conclusion that no one cause either inside or outside the body is alone responsible for this disease. While one may conclude from the numerous clinical cures established by the local removal of the disease that cancer begins as a local lesion, still it is evident from experimental investigations that the local tumor site must be in some way predisposed or prepared for the inception of the new growth. Clinical evidence shows that this susceptibility is often related to the age of the patient or to some embryologic defect at the tumor site.

WORK ON THE DIAGNOSIS OF CANCER

No new form of cancer diagnosis applicable to all forms of malignant disease has been developed in recent years. At present many workers, such as Fry in London, Carminati in Milano and Auler in Berlin, are attempting to devise some means of serum diagnosis in cancer; but no reliable results of practical importance have been achieved. No radiologic technic specifically adapted to cancer diagnosis has been worked out. Biopsy and the use of the frozen section for tumor diagnosis is not as widespread in Europe as in America. In a few laboratories, namely, at the Cancer Hospital in London and in America at the Johns Hopkins Hospital, there is a search for a differential cancer stain which will make frozen section diagnosis more accurate and useful. Dr. Lipschütz of Vienna believes that he has demonstrated a specific morphology in the cancer cell by a new method of staining fixed tissue with the Giemsa dye. With this stain he finds a semicircle of basophilic granules outside the nucleus of the tumor cell which he terms a plastin reaction. His results, however, are not applicable to frozen sections or to practical diagnosis and have not been extensively tried.

Studies now under way in the laboratory at the Johns Hopkins Hospital would seem to confirm the work of Lipschütz, but it is too early at this time to make any detailed statement.

These various attempts to find a new diagnostic procedure for cancer must be guided by a reliable and definite standard for the recognition of this disease. In borderline cases at present the only standard is the combination of the microscopic observations with the clinical follow-up. This clinical follow-up is of necessity cumbersome and long drawn out. Therefore refinement in the microscopic technic to the point of certainty in tissue diagnosis is most desirable. The chief hope in this direction at present is a reliable differential stain for cancer.

WORK ON THE CURE OF CANCER

The search for a cancer cure is becoming more and more widespread. Radium treatment has had a distinct rise in popularity both in Europe and in America, but in Regaud's clinic in Paris, where the results have been most carefully checked, this mode of treatment has been found useful only in cancer of epidermal origin and has a close competitor in surgery. Treatment of cancer by intravenous injections of colloidal lead has been abandoned practically everywhere. Blair Bell at Liverpool and Todd at Bristol are continuing with this method in a modified form, using lead selinate. They alone are encouraged by their results. The quest for a vital dye to serve as a chemotherapeutic agent is being pursued in many European laboratories. No success has been reported, although trypan blue and isamine blue have both been advocated in Danish and German clinics. The attempt to immunize against cancer is being tried by Lumsden in England and elsewhere in

Germany. It is still in the experimental stage. Newer metabolic observations with regard to the respiration of tumor cells have been applied in the experimental treatment of cancer. Warburg of Berlin has tried to suffocate the tumor by an atmosphere deficient in oxygen, and Sokoloff of Prague has tried to exhaust it with overbreathing. Both methods have been confined to local growths in mice.

A series of criteria for judging alleged cancer cures is easily formulated, although compliance with its requirements is difficult. We all know what we want or wish for any patient suffering from this disease. First, we want to face the facts and know for certain whether or not the patient actually has cancer. This implies biopsy. Secondly, we want to be able to cure cases in all stages, even in the face of recurrences and generalized metastases. Thirdly, we want the cure to be permanent. These three criteria, histologic diagnosis, cure of metastatic cases and permanent cures established by follow-up examinations, extending over five year periods, should be applied to all alleged cancer cures.

From this point of view immediate cures of local tumors in experimental animals, however intriguing, are false alarms. Serious and extensive clinical trial of any method by workers other than its advocate should await, first, the submission of the sections to substantiate the diagnosis in all cured cases; second, proof that the disease had progressed to dissemination at the time of treatment and, third, a five year follow-up to show the permanence of the cure.

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FOLLOW-UP STUDY OF HYPERTENSION *

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A review of the literature since 1919, with a casual examination of the literature for ten years before 1919, has shown a prodigious number of papers on hypertension. Follow-up studies have been remarkably few and, as far as we can learn, have been made on patients under treatment for cardiovascular diseases. Further study has shown that such researches have been made on groups of patients more or less selected by the class of practice under control of the author, such as the work of Janeway, Paullin, Christian, and other eminent consultants. Mortality statistics by a follow-up study of unselected cases have not been found.

This study has been made as follows: We have removed from the file and examined individually 17,500 histories recorded between Jan. 1, 1918, and June, 1924, by eight physicians with their associates, doing all classes of private work except obstetrics and pediatrics. Each general history showing a systolic blood pressure above 175, with a complete physical examination, was included in this study. By this laborious method we have obtained the record of every case of hypertension seen during a five and one-half year period ending five years ago, without regard to inaccuracies of indexing or of general diagnosis.

Next we carefully tabulated 3,000 histories of patients having general examinations, 500 consecutive in each of the years covered by this study, to determine in decades the average number, age and sex of all patients having general examinations. We learned that 10,000 general examinations were made during this period; we also determined that our registrations showed 53 per cent female, but that between the ages of 40 and 80 (the hypertension age) the age and number curves of the sexes almost exactly coincided in our clinic, i. e., an equal number of males and females by decades have general examinations.

Thus were obtained 401 histories of hypertension, culled from some 10,000 general examinations made by eight physicians from five to twelve years ago. The study manifestly includes a fair average of hypertension seen in patients who consult physicians for any kind of complaint. It gives a cross-section view, as it were, of hypertension in sick people.

Actuarial figures manifestly do not parallel such a study. The actuary examines the records of people who consider themselves healthy and prove it by applying for life insurance. Also actuarial figures are necessarily based on a large preponderance of males and, as we will show, men with hypertension make a poor showing of longevity if compared with women having hypertension.

We practicing physicians, on the other hand, remember vividly those patients that have lived for years in spite of high blood pressure. We tell the next patient with hypertension that we have known other patients to go on almost indefinitely in spite of hypertension. We are as reassuring as possible to the patient, and properly so. We have not counted our dead. By such conversation and habits of thought the physician often seems to make light of hypertension, particularly of moderate degree. The practicing physician is inclined to remember too well brilliant exceptional cases and to forget the rule.

A study of hypertension makes necessary a statement of the variety of patients considered. We have included in our 401 cases every patient who had a blood pressure above 175, regardless of cause or associated disease. We then subdivided them into two large groups: (1) essential hypertension and (2) hypertension associated with other diseases. We subdivided the group of hypertension associated with other diseases under the diagnoses of toxic goiter, syphilis, diabetes, valvular heart disease, subacute nephritis and chronic nephritis. We found ourselves unable to show any difference between hypertension with other diseases (except frank nephritis) and hypertension without other evident diseases. This statement is based on the study of average age, sex, length of life and symptoms.

True nephritis is in great contrast to the other associated diseases. Patients having subacute nephritis are on the average much younger, live a short time, and are evenly divided as to sex. We find that the usual use of the term "chronic nephritis" indicates a late stage of hypertensive disease, in which renal injury has become more evident than cardiac; similarly we find that the term "chronic myocarditis" usually indicates late hypertensive disease in which the cardiac injury is more in evidence than the renal.

We therefore reassembled our cases of hypertension and considered all as hypertension, regardless of associated diseases. Cases of true nephritis should be excluded, but there are too few cases to affect the averages.

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* From the Mason Clinic.
* Read before the Section on Practice of Medicine at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

A study of hypertension in decades has shown that only a small fraction of 1 per cent of patients under the age of 30 have hypertension. Between 30 and 40 the incidence is 1.2 per cent. Beginning in the forties a rapid rise in the incidence of hypertension occurred, until in the sixties we find that 22.5 per cent of all patients examined had a blood pressure above 175. After this decade the incidence curve falls. Between 50 and 70 years of age, 16 per cent of all patients examined in the clinic had hypertension.

The sex incidence of hypertension has shown that 65 per cent of patients were females. Although general examinations are evenly divided between males and females, females with hypertension outnumber the males almost two to one.

CLINICAL MANIFESTATIONS WITH HYPERTENSION

Cardiac symptoms have been carefully tabulated. We find no particular differences between the sexes. Half the patients did not complain of cardiac symptoms at the first examination. Clinical study shows that approximately half of all patients have some degree of cardiac hypertrophy. Vascular symptoms, particularly headache, dizziness and vertigo, were noted in about one third of the cases. Teleroentgenograms of the chest were made on 168 patients, and one third of these showed broadening of the aortic shadow.

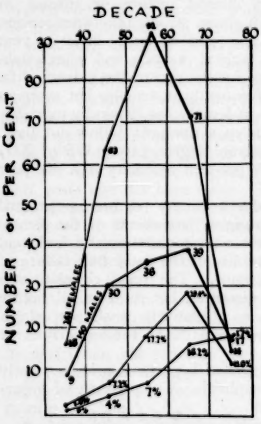

Chart 1.—Incidence of hypertension in 401 cases found in 10,000 general clinical examinations in the Mason Clinic: Upper half of chart, incidence in decades; lower half of chart, percentage in decades of all cases of hypertension in relation to all patients entering the clinic who had had general clinical examinations more than five years before. Clinic registrations show an equal number of males and females, studied by decades from 40 to 80 years.

Chemical examination of the blood was not so commonly done five or more years ago as now; yet we have seventy-four readings of creatinine and urea in these patients. It is surprising how often these readings were normal. We have been disappointed as to any great prognostic value of creatinine readings, except with very frank renal insufficiency.

Of 363 Wassermann tests, eighteen were positive.

Valvular heart disease was noted in twenty-seven patients.

A family history of hypertension was noted in one third of all histories.

Diabetes was noted in twenty-one patients.

Gallbladder disease was diagnosed in fifty-nine instances, being a primary diagnosis in twenty-nine of these. A 15 per cent incidence of gallbladder disease is high, and it suggests a possible etiologic factor in hypertension.

Obesity has been noted. Most hypertensive patients are not obese, and this applies particularly to extreme hypertension.

FOLLOW-UP STUDY

In all, 222 patients (55 per cent) have been successfully followed up. These have been found by personal interviews, by letter, by telephone, by cooperation of physicians, and by other methods. A number have come in by request for reexamination. For the purpose of this study, we have divided all cases of hypertension into four groups:

1. Mild hypertension, systolic pressure 150 to 175. These cases are not included in this study.

TABLE 1.—*Other Diagnoses with Hypertension*

Valvular heart disease	27
Gallbladder disese	58
Diabetes	21
Toxic goiter	25
Positive Wassermann reaction (out of 363)	18
Acute or subacute nephritis	6

2. Moderate hypertension, systolic pressure 175 to 201, and diastolic 100 or below.

3. Marked hypertension, systolic pressure 201 to 226, or diastolic between 100 and 120.

4. Extreme hypertension, systolic pressure 226 or above, or diastolic above 120.

Hereafter we will speak of moderate, marked or extreme hypertension.

One hundred and twenty-one patients are dead. We have excluded twenty of these from our statistical record because these critically ill patients died shortly after the first examination, leaving 202 who were followed up.

Of these 202 patients 101 are dead, a mortality of 50 per cent. The average length of life following examination was thirty-five months. Investigation of the difference in mortality between the sexes has given rather startling information: Seventy-three males have shown a mortality rate of 70 per cent, for fifty-seven patients are dead. The average length of life following examination was thirty-two months. One hundred and twenty-nine females show a mortality rate of 39 per cent, fifty having died. The average duration of life following examination was forty-four months.

TABLE 2.—*Diastolic Blood Pressures in Patients Followed Up After from 5 to 11 Years*

Diastolic Pressures	Number of Cases	Number Dead	Per-centage Dead	Months to Death After First Observation
60-110	122	47	39	40
111-120	44	26	59	45
121-130	20	30	65	34
131 +	16	15	94	21

TABLE 3.—*Two Hundred and Twenty-Two Hypertension Cases Followed up for from 5 to 11 Years*

	Moderate, 175-200	Marked, 201-225	Extreme, 226 +	Totals
Males:				
Living	7	11	2	22
Dead	15	19	17	51*
Unknown	27	14	16	57
Total	49	46	35	140
Females:				
Living	32	38	9	79
Dead	10	18	22	50*
Unknown	53	42	27	122
Totals	144	145	192	401

* Plus 10 moribund.

These dead patients have been considered in groups according to the severity of hypertension at their first examination. Moderate hypertension shows a male mortality of 68 per cent; female, 24 per cent. Marked hypertension shows a male mortality of 59 per cent; female, 35 per cent. Extreme hypertension shows a male mortality of 90 per cent; female, 71 per cent. The death expectancy among males is nearly twice that among females.

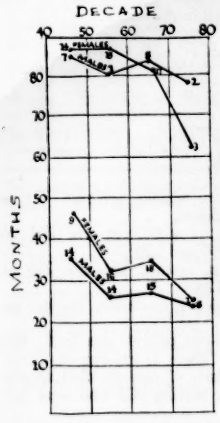

Chart 2.—Condition of 222 hypersive patients (55 per cent follow-up) after from five to eleven years; ninety-three were living and ninety-four were dead, a total of 187. Of the remaining thirty-five (not shown in the chart), eight were living under 40; two were dead after 80; five were dead under 40, and twenty were moribund. Upper portion of chart shows 101 patients alive; average period of observation in months of all living hypertensive patients, and age decades at first observation with number of cases available to make averages. Lower portion of chart shows 101 patients dead (not counting twenty moribund); average months from first observation to death in fatal cases, and age by decades at first observation, with number of fatal cases available to make averages.

Diastolic blood pressures have, of course, been noted. Up to the diastolic pressure of 110 inclusive, 122 cases showed a 39 per cent mortality. From 111 to 120 diastolic, forty-four cases showed a mortality of 59 per cent; from 121 to 130 diastolic, twenty cases showed a mortality of 65 per cent. With diastolic pressures of more than 130, sixteen cases showed a mortality of 94 per cent.

Causes of death have been ascertained in most instances. Of all deaths, thirty-one occurred from causes not related to the circulation and ten more from unknown causes. Six deaths occurred from acute nephritis. Of seventy-four remaining patients thirty-one died from cerebral disease, twenty-four from heart disease (including coronary disease), and eighteen from uremia. The difficulty of distinguishing cardiac from uremic deaths is doubtless responsible for the large number of uremic deaths. Apoplexy comes first as a cause of death with hypertension, and heart disease a close second with the kidneys a poor third.

TABLE 4.—*Deaths from Hypertension Causes Recorded by Follow-Up Study of One Hundred and Twenty-One Deaths*

	Brain	Heart	Kidney	Other	Unknown
Moderate, 175-200	6	7	1	12	2
Marked, 201-225	7	8	12	12	3
Extreme	18	10	11	7	5
Totals	31	25	24*	31	10

* Includes 6 patients with subacute nephritis dying from uremia.

MORBIDITY

Of the patients studied, 101 are still alive, an average of eighty-one months following their examination. Seventy-one of these 101 patients are women.

A study of the histories has not shown any tendency toward recovery in hypertension. We have no instance in which continued observation has shown any constant normal blood pressure after a reading above 175 has been made at the first examination. The much discussed "menopause group" has failed to show any recovery of a constantly normal blood pressure, although many of these patients are subjectively in the best of health.

A few exceptions may be noted. We have one patient, a woman, aged 80, whose blood pressure has been repeatedly observed above 300 during twelve years, and who tells us that Dr. Billings found it nearly that high in 1909. She is mentally brilliant and physically active. Two other women are living and able to be about who have had blood pressures well above 250 for seven and nine years, respectively. However, twenty-one other patients with an original observation of blood pressure above 250 are dead; no male has survived. These three remarkable cases are culled from 10,000 examinations.

GENERAL COMMENT

Hypertension is a clinical picture or disease of unknown origin which shows strong family tendencies. It is found in middle life (past 50 years) in 16 per cent of patients seen in a general practice, and when established the disease lasts for the rest of the patient's life. It is found twice as frequently in females but averages only half the severity in females, as shown by mortality and morbidity records in a five-year follow-up study. Hypertension of moderate degree (from 175 to 200) in males leads to a 70 per cent mortality in a five-year follow-up.

Hypertension produces in its victims a gradual vascular failure, affecting as late events of the picture the cerebral or the coronary circulations or both and usually terminating the life of the patient by failure of one or the other systems. The renal circulation is affected late in most instances, but its terminal failure is a cause of death in a relatively small percentage. "Hypertensive disease" seems to us the best name for the disease.

The late clinical picture of hypertension is frequently diagnosed as chronic nephritis. The presence of hypertension associated with albuminuria and casts does not make the diagnosis of a primary nephritis. Likewise the association of hypertension with syphilis, goiter, diabetes or valvular heart disease only changes the picture of hypertensive disease by adding other symptoms.

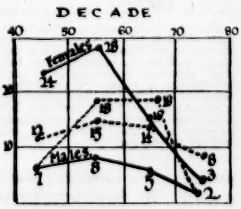

Chart 3.—Mortality by decades and sex in 187 hypertensive cases followed from five to eleven years. An additional thirty-five patients—two over 80, thirteen under 40 and twenty moribund or dying early from other causes—are not shown. Solid line, living; broken line, dead.

Hypertension is most often seen in patients with no evidence of nephritis. The statement that hypertension is only a symptom of something else is doubtless true, but research has not thus far shown what the "something else" is. All diligence must be used in searching for a cause of hypertensive disease, but in the large majority of patients the cause will not be found by present methods, for it is unknown.

Discussion of treatment is purposely omitted. However, we would urge that the hypertensive patient's happiness and future health demand that he be not made miserable for his remaining years by a dread of early

death or impending disaster. Peace of mind, relaxation of body and moderate habits are essential to the patient's health and longevity.

CONCLUSION

A study of 401 hypertensive patients (systolic pressure 175 or over) found in 10,000 clinical examinations made in a general clinic from five to eleven and one-half years ago has shown that:

1. The appreciable incidence (1.2 per cent) of hypertension begins in the fourth decade; 5.8 per cent of all patients examined in the fifth decade showed hypertension; 12.3 per cent in the sixth, 22.5 per cent in the seventh, 14 per cent in the eighth, and 10 per cent in the ninth showed blood pressures above 175.

2. Sixty-five per cent of the hypertensive cases in this series are in women; 50 per cent of all patients examined were women.

3. The remarkably greater number of women having hypertension, as compared with men, comes in the fifth, sixth, and seventh decades.

4. Family histories of hypertension were noted in more than one third of all histories.

5. Cases of hypertensive disease complicated by goiter, syphilis, diabetes, chronic nephritis and valvular heart disease have each shown by groups no particular difference from cases of pure hypertension.

A follow-up study of 222 of 401 hypertensive patients (55 per cent) examined from five to eleven and one-half years ago has been made. Twenty of these have been discarded for statistical study because they were moribund at the time of examination or died shortly afterward from other diseases. The 202 cases remaining, followed from five to eleven and one-half years, have shown:

1. A gross mortality of 50 per cent, a male mortality of 70 per cent and a female mortality of 39 per cent.

2. A mortality about the same for moderate and marked cases, but twice as high in extreme cases.

3. An average duration of life after the first observation of thirty-two months for males and forty-four months for females.

4. An average time since the first examination of 101 living patients of eighty-one months.

5. Known causes of death, thirty-one from cerebral complications, twenty-five from heart disease, eighteen from uremia.

We have not found any tendency toward recovery in hypertension.

Occasionally remarkable exceptions are seen to the general rule of mortality. Women with hypertension sometimes outlive their expectancy. Men almost never do.

ABSTRACT OF DISCUSSION

DR. LESLIE T. GAGER, Washington, D. C.: To follow the course of a patient from the onset of the symptoms to his recovery, or his death and the necropsy, is the basis of sound practice and clinical wisdom. This was Mackenzie's ideal; it is the foundation, I think, of the soundness of American medicine. In the East, 90 per cent of hypertensive patients die within ten years after leaving the consultant's office. But both in the East and in the West we have to agree on the seriousness of hypertension. The story of hypertension began in the hands of Bright with its final chapter, the kidney, and the renal lesions were regarded by Traube and Cohnheim as the cause of the high pressure. That theory of renal genesis still is prevalent in clinical thought. Follow-up studies, however, show us three things. First, hypertension begins early in life, continues over a long period of years, and gives some grounds for optimism in spite of the high mortality figures. I am afraid the consultant or the clinic sees these patients late in the course of their disease. Recently I was consulted by a physician who twenty-five years ago, when the study of blood pressure was first introduced, found that he had hypertension. He was a man who could take care of himself: some years ago he was able to retire from practice. His blood pressure today is lower than it was ten years ago. In a patient diagnosed as having malignant hypertension and given six months to live, I found seven years later perfectly clear eyegrounds except for arteriosclerosis. Eventually he died of cerebral hemorrhage. Dr. Thayer in his Bright oration has a footnote regarding a physician who at the age of 45 consulted Richard Bright because of kidney disease. Bright gave him two years to live. The man retired, went to the country, and died forty-three years later with a cerebral hemorrhage. What man has done, man can do again. These exceptional cases show that somehow or other there is a key to the solution. The second thing the follow-up studies have contributed is a new approach to the problem. They have shown us that we need to get away from the renal theory. Hypertension as a primary vascular disease, a systemic involvement of arteriole and capillary, is the thing that needs our study and treatment. Finally, with the new conception of hypertensive disease we have a different therapeutic attitude. We have seen that diet is, after all, a secondary matter. We must realize that drugs are likewise of secondary importance. What we need really are the facts of cellular metabolism. Until we have that new knowledge our clinical attitude must be that of Munk, to avoid "the unnecessary too much and the dangerous too little."

DR. WILLIAM H. ROBEY, Boston: It is clear from these comprehensive papers that we have much to learn about hypertension. Evidently it is a vascular disease and has nothing necessarily to do with the kidneys, and all the manifestations in which death occurs in patients who have had hypertension are due to some complication caused by arteriosclerosis, of the brain, the heart or the kidneys. Wherever the arteriosclerosis happens to be most marked, there the accident occurs. Discussions of hypertension have been increasing steadily during the last few years. Why is it that such a fear has been thrown into the public about blood pressure and why is it that so many people come who show clearly that the only object of their visit is to find out what the blood pressure is at the moment? We have talked altogether too much to patients about blood pressure. Dr. Williams, who examines applicants for the state police in Massachusetts, says that when several men have to wait in the anteroom for a half-hour or more for physical examination they often have hypertension when they come into the examining room, but if a man can be put off for some reason until the next morning, he is examined quietly and his blood pressure is found to be within normal bounds. I leave taking the blood pressure until the last part of my examination, and always find out what the patient is interested in before I take the pressure, whether horse-racing, motoring, airplanes or what not, so that the patient has something to talk about before the pressure is taken. It is a bad plan also to make the blood pressure the principal part of the examination. It is a good plan occasionally to forget to take the blood pressure, and it is an equally poor plan to talk about it, just as it is to talk to patients about angina pectoris. One can treat the patient just as well by talking about something else. One does not have to name the condition. It is a good plan for the physician to have a poker face when he takes the blood pressure. One must not look too wise or too interested in what he observes.

DR. S. MARX WHITE, Minneapolis: The authors' study is particularly interesting in giving us some sidelights on the prognosis of the condition. As physicians, we have a duty to perform to our patients which I think has been well exemplified by the discussion of Dr. Robey. Writers have mentioned the advisability or inadvisability of discussing the blood pressure with the patients. I suspect that is true in most matters concerning the art of medicine. A good deal depends on the physician himself. As I view the problem of the management of patients, I come to the conclusion that one must be willing, if he is going to make a start in discussing their condition, to carry it through. By that I mean that we are tempted often to shorten the discussion with our patients. If it is a matter of manage-

ment, however, I believe a thorough discussion is essential. While all of us hate to lose time, yet I think we should be willing to take the time to give our own views of the subject. I am not able to hide from the patients an essential discussion of the condition present. I have to tell most of my patients something about their blood pressure. I may not tell it all. But when I do, I feel that I am required by the patient's interest to give enough of the facts as we know them to set the patient right. We have enough facts with relation to essential hypertension to be optimistic, and we can recite that information. While the authors say that they have not seen cases in which recession of the disease has occurred, I am hopeful that my own experience has been repeated many times. I have seen individuals with a hypertension of over 170, and a diastolic pressure of at least 100 or more, in whom the evidences of the condition have receded and have remained quiescent over a number of years. I have not had an opportunity to study enough cases over a long enough period to know whether the improvement is permanent. I suspect that in all these individuals sooner or later evidences of cardiovascular disease will develop.

DR. A. A. HEROLD, Shreveport, La.: It is extremely gratifying in these days of vaunted therapeutic remedies to hear conservative and rational papers. I think we can all bear out the last speaker in his prognosis in women. I wish to call attention to two therapeutic measures that have not been mentioned here. One is the moderate restriction of fluids in all cases of chronic hypertension and the other concerns the hepatic function. Dr. Granger has said there has been no evidence to approve (in fact there has been rather evidence to disprove) the idea that autointoxication increases the blood pressure. My experience has been the same as the experience of others in my community—if we watch the hepatic function carefully by giving a direct or indirect cholagogue at regular intervals, we can do much to keep the hypertension down. My attention was called to this a few years ago when a drug house got out a preparation of liver extract which they advised in these cases. I found invariably in "essential hypertension" or in hypertension with other complicating conditions that when these drugs were used there was a marked temporary decrease in the tension. When the drug was discontinued, the tension returned to the old figure. On this basis, I cannot help feeling that future investigations will bring out the importance of the hepatic function in hypertension and that some valuable therapy will emanate therefrom; especially, when we consider the aid of liver secretion to kidney excretion.

DR. VIRGIL E. SIMPSON, Louisville, Ky.: One of the difficulties is that the introduction of the term "essential" as attached to hypertension has no clinical vision. If we mean by this term to include all cases of hypertension which are not dependent on nephritic lesions, well and good. Then we should make such a classification read, "hypertension dependent on a nephritic state," as contrasted with the group of cases under discussion, "hypertension in which a nephritic state is not present." But that does not relieve us from a consideration of the fact that a hypertension must have a cause, and we are merely begging the question when we attach the term "essential" to hypertension and cease to search for a reason for its existence. Taking the figures of the last paper as a basis of consideration, one would be inclined to believe that essential hypertension is badly named, and that it rather is a malignant type of hypertension, as the fatality rate is nearly as high as that dependent on nephritic states. If we think of the term "essential hypertension" or the term "essential" in the light of necessary and then "necessary" in the light of "consequential," it must lead us back to inquire, "Why this so-called essential hypertension?" Another difficulty about it is that if the profession is led to accept the term "essential hypertension" as having a proper place in medical nomenclature, it tends to produce a feeling of satisfaction with our failure to determine that there is a cause for this hypertension. The play on terms reminds one of the query as to why a bee hive is like a rotten potato, the answer being that a bee hive is a bee-holder and a beholder is a spectator and a "specked tater" is a bad potato and a bad potato is a rotten potato.

DR. W. R. HOUSTON, Augusta, Ga.: In China, with a population three or four times ours, there is no essential hypertension. I was in China for four years and during that time never saw a case of essential hypertension. Cases of hypertension were seen in connection with frank renal disease, but when one found hypertension one might know without further investigation that one was dealing with a case of nephritis. The quiet life of the Chinese has been mentioned as an explanation of the absence of hypertension. I should not say from what I saw of the Chinese that their life is quiet. In fact, the Chinese street and the Chinese shop are infinitely more bustling and noisy than anything that we find here. We cannot call the quality in the Chinese that renders them immune to hypertension calmness. It must be something else, something in their philosophy of life. I should be more disposed to call it acceptance; that is, taking things as they come, an absence of that sense of inner pressure and struggle that seems to be the basis of hypertension. There is not only this about the 400,000,000 people of China, but there are also several collateral facts that we might notice. Chinese, when they come to live in this country, have the same blood pressure that we do. Their normal blood pressure is 20 points lower than ours, on the average about 100 for the normal systolic. When they come here they soon acquire the same systolic pressure that we have. Not only that, but in a rather small group living in the middle of China, at Yale in China, where I was, the blood pressures of the foreigners who came there were taken year after year. There was a progressive drop, until in the course of time we all came to have the same normal blood pressure that the Chinese had. I should not like for us to be like the Chinese. I do not think that it is desirable that we should cease to have that sense of struggle that makes us different from the Chinese, but, when we begin to discover evidences of pathologic tension, it is evident that we should study the means of securing relaxation. We would like to go at it centrally, to get at the real heart of the patient's psychology; if it would be possible to confer on him the peace that passeth all understanding, it would be a splendid thing. Yet if we cannot get at it all so fundamentally, we might well consider teaching him bit by bit the technic of relaxation. There is an interesting study along this line in a book that has recently come out entitled Progressive Relaxation, by Dr. Jacobson of Chicago, a technic for learning to relax all the voluntary muscles and evidence to show that if we acquire that technic thoroughly, especially as regards the muscles of speech and of the eyes, there will arise a relaxation in those unstriped muscles that are controlled by the autonomic nervous system. It may be that some such approach as that, instituted at an early period, before essential hypertension has become arteriosclerosis, may be of real value in combating the disease.

DR. ARTHUR STANLEY GRANGER, Los Angeles: Dr. Stoner mentioned the possibilities of certain pressor or depressor substances as having something to do with hypertension (in discussion on Granger, THE JOURNAL, Sept. 14, 1929, p. 823). In 1911 and 1912 we made an investigation based on the observations of the English physiologists of certain pressor substances which they found in the urine and which some clinicians had surmised might be decreased in the urine and evidently retained in the system in some cases of hypertension. These were particularly two of the split protein products of the amino group. We were unable to show any changes in blood pressure by isolation and injection of these pressor substances. With regard to what should be told the patient, of course, as I mentioned, there are some patients with whom it is manifestly unwise for us to enter into any discussion of their ailment. And yet there is a large group with whom, if one can spend a little time in talking, first discussing affairs other than things medical and gaining the patient's confidence, one may, with safety, discuss the hypertension without in any way causing alarm. I never have seen any harm come from such frank discussion in this large group of cases. Dr. Simpson spoke about the limitations of the classification "essential hypertension." It is true that a very fine line has to be drawn, occasionally, between cases of essential hypertension and those due to other causes. That is, in a case that we follow through a certain period of years, which bears all the clinical earmarks of essential hypertension, at autopsy often there are certain arteriosclerotic changes of the larger vessels that do not agree with our present conception of the pathologic changes of this type of high blood pressure. The vast majority of the cases of this group, however, can be

differentiated from the hypertension that is dependent on a frank kidney disease, glomerular disease of the kidney or disease secondary to aortic insufficiency and other causes.

DR. JOHN M. BLACKFORD, Seattle: The literature on hypertension repeats each year the same general statements regarding etiology. There are no facts available yet regarding general etiology. With the exception of a single paper by Dr. Paullin, read before this section two years ago, there is no paper in which any follow-up study has been undertaken of a group of hypertensive patients. Dr. Janeway in 1912 and in 1913 published excellent work along the line of follow-up study, but gave no accurately stated figures. If I remember correctly, his only statement regarding the results of hypertension was that 25 per cent of 100 patients were dead. Dr. Paullin's work brought out with much emphasis the increased mortality among males. His percentage incidence of hypertension was, however, approximately the same for the two sexes. The most striking thing to us in this study of hypertension in an unselected group of patients has been the preponderance of females having hypertension over males, the ratio being approximately two to one. Only half of the females, however, had complaints due to hypertension. Therefore, in any study of patients who come for the treatment of symptoms of hypertension we would expect to find approximately the same incidence in men and in women. In connection with the menopause group of patients and their recovery of normal blood pressures, my impression (until this study was made) was that many of these patients recovered normal blood pressure. I have seen such patients symptomless over many years; but I have not seen, when I have applied the acid test of actual follow-up study, any cases in which the blood pressure has come back to normal and stayed there. I am not familiar with blood pressures in China. The Japanese do have high blood pressure. Dr. Firestone, who is stationed at one of the U. S. Public Health Service outposts in Alaska, told me that the Eskimos have approximately the same incidence of hypertension that one finds in the United States. It would be difficult to explain this hypertension on the basis of the busy life of the Eskimos. Let me again emphasize that in talking to the patient with hypertension about his blood pressure we must always preserve a cheerful poker face. That is part of the art of practicing medicine. We should always tell the hypertensive patient about other patients who have lived for ten, twenty, thirty and forty years with hypertension. But we must not forget the sad facts brought out by the follow-up study of cases of hypertension.

The Roentgen Ray and Diagnosis.—The man who depends on an x-ray alone to make a diagnosis of pneumonia is a danger to the public. What is roentgenology but the study of lights and shadows? He who would make a positive diagnosis of pneumonia from a shadow alone is guilty of a rash and temerarious act. The information supplied by an x-ray plate is often of immense complementary value. Alone and without the information afford by the history, the appearance of the patient and the results of physical examination, it is often of no more value than that afforded by percussion alone—indeed, less; for he who percusses the chest cannot fail to observe the patient. No one technical advance in my lifetime has been of greater diagnostic aid to the practitioner than the introduction of roentgenology. Yet I regret to say that the pendulum of medical fashion in its almost automatic swing has led many worthy men to neglect the teaching and the practice of physical exploration to such an extent that it is sadly common today to find men who regard themselves as clinicians ready to accept the report of a roentgenologist utterly incapable himself of making a physical examination; too often, indeed, unable to make a proper physical examination themselves. This is not to practice medicine. The roentgenologist may be a man of good general medical training who has had a considerable clinical experience, who follows his patients to operation or necropsy or recovery and confirms his suspicions by a study of the results; or he may be a pure technician whose opinion, gained in the laboratory alone, is of little value. Neither physician nor roentgenologist is capable of expressing an opinion of value if he be not a fairly good pathological anatomist.—Thayer, W. S.: Individualism in Medicine, *California & West. Med.*, December, 1929.

WHY PATIENTS CONSULT THE GASTRO-ENTEROLOGIST

MOTIVE AND ATTITUDE OF ONE HUNDRED AND FIFTY PATIENTS *

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In this study the psychiatrist has interviewed 150 gastro-intestinal patients to determine their basic motives in visiting the physician and what attitudes or emotional problems they had which would be apt to influence their cooperation in treatment. I have been moved to do this by the current neglect of these matters, a neglect which is augmented by the lack of objective data or methods of approach. In addition, I have felt that these simpler psychiatric problems might offer clinical material of easier access and of greater interest to the medical student than are ordinarily used.

Perhaps we can best get on common ground by looking over an actual problem:

Lena, a well nourished, healthy looking Italian woman, aged 33, sought help for abdominal discomfort—accumulation of food, a pinched feeling, headaches, and anorexia at times. In the department of medicine she told of having fallen on her side five years before, of feeling very bad for a month, and of never having completely recovered. In the absence of positive physical observations she was referred to the gastro-intestinal clinic.

The psychiatric interview revealed that she had not actually fallen but rather that her husband, according to a custom of his, had punched her. In view of her illness, his punching had ceased. The patient's only social contacts consisted of visits from neighbors when she was sick. She was afraid of "pus" or "tumor" and of dying and leaving her children. Her sole interest in living was her children.

The gastro-intestinal diagnosis was negative for organic diseases of the gastro-intestinal tract.

This patient's tendency to conceal her husband's attack is of twofold importance. It reveals her sensitiveness and the high emotional value of this incident, without recognition of which she could not be treated; it portrays an almost universal attitude that only the physical experience is of medical importance. This patient's illness secured for her protection, affection and social attention. In consulting a physician she hoped to justify her solution. It was the job of the physician to help her to a less incapacitating solution of her problem.

So much has been written about dealing with the patient as a whole that it would be impossible here to review the literature on the subject. Most of this has been inspirational rather than factual. So much has this been the case that the idea of dealing with the patient as a whole has come to be a platitude and to have a corresponding lack of force. Scientific case reports which show that the idea has taken root are rarely seen. How to translate the idea of the patient as a whole into everyday practice has not been evident. It is hoped that the technical suggestions resulting from this study will help bridge the gap between the behavior of a stomach

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or gastro-intestinal tract and that of a patient, particularly in outlining a plan of treatment.

It is recognized that there is a close relationship between the handling of the patient as a whole and what is often spoken of as the art of medicine. However, practically all medical progress has come through a better understanding of the patient in parts—his blood, his pancreas, his brain, his metabolism, his immunity. Can the art of medicine in dealing with a patient as a whole likewise be made objective so that it can be incorporated into everyday practice and not left so frequently for the chiropractor, the Christian scientist and other cultists to capitalize?

In this connection there are two sets of facts about the patient which seem susceptible of isolation and study: the motive of the patient in seeking help and the emotional problems of the patient involved in his complaint and disease. It is these two things that the cultist seizes on as his only hold in the absence of scientific medical training. Likewise it was these which gave the family physician of old his firm and deserved footing. Neglect of the patient's motive and emotional problems by the medical profession is today lending aid and comfort to the cultist and wasting a powerful instrument of treatment.

MOTIVE

For years the medical student has been taught as his first step in dealing with a patient to determine what brings the patient to the physician. For the most part he has only partially accomplished this in recording what is called the complaint. There is often a great difference between the patient's complaint and his motive in seeking medical aid. His motive is the real driving force; the complaint is its superficial expression. For example:

F. D., a woman, aged 20, married, complained that her back hurt; that she had headaches; that it burned "here" (epigastrium), and that she had a tapeworm. She elaborated on these complaints for a while, finally drifting toward the real motive, which, because of its great emotional significance and social tabu, she covered up. She said: "My back has hurt ever since I was married. I think it is because I have kept from having children." She then revealed her motive in coming. "Where is the birth control hospital?" Throughout the rest of the interview, in which she was given free rein, she did not refer any more to her complaints. Her embarrassment in revealing her motive and the awkward way in which she blurted things out, such as "Anyway I'd rather have a backache than a kid," and the facial mannerisms, strongly suggestive of schizophrenic behavior, indicate the emotional value of the motive as compared to the complaint. Her description of severe monthly emotional upsets, relieved only when she proved not to be pregnant, added confirmation.

The motive may be at times on the surface and entirely revealed in the patient's complaint when, for example, he complains of severe cramps (motive pain) or fear of cancer (motive anxiety). Pain is a motive that the patient does not often hesitate to reveal; anxiety is often concealed, depending in part on the past experiences which have sensitized the patient. But there are other motives that the patient carefully conceals. These are to be discussed later.

The patient who has masturbated falls victim to the popular misconception that serious physical weakness has resulted. Anxiety may then be aroused by a slight disorder or by some normal condition, such as distention from swallowing air, which he interprets as pathologic. There may be no other basis than his suggestibility to the gloomy comments of acquaintances on his health or the occurrence of ulcer, cancer or heart disease in a close friend or relative. Nevertheless, he conceals the basis of his anxiety consciously or unconsciously because the subject is tabu.

No one likes to admit that he is still tied to his mother's apron strings. Consequently, the anxiety at facing the world that comes when death removes a mother, father or other support often expresses itself in physical complaints. For example:

V. D., a married man, aged 23, had been going to a specialist eighteen months for stomach trouble, expelling gas, bleeding piles, tiredness, lumbar pains and constipation. He feared ulcer because that meant an operation and death. His physician refused to make a roentgen examination. The disorder started when his mother died. She used to get him good food, such as soup. Afterward he had to eat fried stuff. Then he married and got soup again. He improved somewhat, but his morale still lags when responsibility weighs him down. He says, "When I go away for a week I feel like a million dollars."

To disclose motives is a thing that enters little into our medical training. Not only is there no technic for studying motive but there is little recognition of its importance. Yet how can an adequate therapeutic program be effected if one does not know what the patient is after? If the physician does not satisfy or change the patient's attitude when the motive is active, he will waste much time and so will the patient. How can a common ground of understanding with the patient be established?

ATTITUDE AND EMOTIONAL PROBLEMS

Though one may hear the complaint and detect the motive, one still has a personality to deal with. Every physician must be impressed with the large number of patients for whom the treatment program has been insufficiently attractive to insure cooperation or return visits, a state of affairs seen both as they drop out of his own practice and as they tell of having seen many other physicians previously. Here, for example, is a personality that could not be ignored in treatment:

A. K., a woman, aged 44, single, complained of gas, heartburn and sourness. She said, "I have had lots of worry, excitement and trouble at home and that upsets my stomach. I'm afraid it may be organic." She lived alone with her tyrannical German parents, both over 80, her only relatives. She had few friends and, because of her parents' demands, never married. She regretted this. The future looked gloomy to her. A diagnosis of postpyloric ulcer was made.

It was the aim of this study to disclose the motive and the important emotional problems in gastro-intestinal patients.

METHOD

Arrangements were made whereby, in the order of admission, patients in the gastro-intestinal department of the Cornell clinic were given a preliminary psychiatric consultation prior to other examinations. No selection at all was exercised within the department. It is probable, however, that patients applying for treatment at Cornell are selected to a certain degree by the fact that Cornell presents a specialized service. The results of this study would consequently be something of an exaggeration of problems met in private gastro-intestinal practice or even more so of general practice. I do not think this magnification is serious. The staff at Cornell was interested and helpful, and conscious of the problem.

This has been a probing study only. Attaching a note of the psychiatric observations made it possible to use these data therapeutically, but an organized effort

along therapeutic lines has been planned as a future step. Here we searched only for facts. The preliminary interview through this experience at Cornell resolves itself into a routine procedure which was followed through with more or less modification as indicated by the particular case. This procedure is as follows:

There are four stages in the interview of patients in their gastro-intestinal consultation. In the first stage the patient is requested to state the trouble or complaint that brings him to the clinic. He is given all the time he wants to make his initial statement and urged to continue his statement without leading questions by interpolations, such as "yes" and "what else," or "and." When the patient has exhausted his complaints they are gone over by the examiner and doubtful meanings and colloquial terms clarified. His complaint is summarized and he is asked if that covers everything. It is determined how severe the pain really is for many patients talk about a terrible pain when they have a relatively slight pain with considerable anxiety.

Then begins the second stage, during which the circumstances surrounding the onset are brought out. It may be that many of the points have already been stated spontaneously by the patient during the first stage. "When did the trouble begin?" is the first question. In order to define this more clearly, the patient is asked when prior to the beginning he had had a physician and in general how frequently. He is asked what the circumstances were at the beginning of his trouble at home and at work; was he having any trouble at the onset; does he blame anything for his illness; does anything make it better or worse? These questions may be supplemented by more direct, specific and leading questions in relation to facts brought out. He may be asked directly, along with the statement of general nervousness, whether he has ever had a nervous breakdown, and if it seems indicated here or earlier, various facts about the mental status, particularly affect, are gone into.

The third stage of examination is designed to bring out his motive in relation to the physician. The question as to the habit of going to physicians and the one last consulted will usually bring out the attitude and reason for changing—what he expected and what he did not get. If these points do not come out they should be gone into specifically, an inquiry finally being made as to what he expected by coming for the present examination.

Finally, in the fourth stage, his attitude toward his illness is considered. It may be necessary to ask leading questions as to fear, anxiety or other motives. These questions are apt to bring out material bearing on the second phase which was not brought out by the approach used there. For example, he is afraid of cancer because his father died of cancer. Here also any matters that seem of psychiatric importance previously brought out should be taken up. If the person is a widow or in any other way the status deviates from the average it is important to determine whether or not this deviation has come about with a healthy adjustment.

This may sound rather formal as I present it here. In practice it is not formal at all. It may be noted that I have indicated that some of the topics may be discussed at the opportune time rather than in exact order. This procedure does not differ so greatly that it cannot be secured along with the medical history. The difference lies in the examiner's perspective; i. e., whether he sees a gastro-intestinal tract behaving or a person behaving. Both perspectives are necessary, and it is desirable to alternate between the two in interviewing the patient if both the gastro-intestinal tract and the person who owns it, who abuses it, who worries it, who is affected by it and who is to help or hinder the physician in treating it, are to be understood.

TABLE 1.—*Gastrodiagnoses*

	Cases	Overlap
Negative for organic gastro-intestinal disease	48	1
Ulcer	24	2
Visceroptosis	17	8
Hypo-acidity	14	6
Spastic colon	11	6
Constipation	8	3
Hyperacidity	6	4
Chronic appendicitis	5	1
Unknown	6	

Table 1 is presented for two reasons: First, it gives some idea of the types of cases handled. There were thirty-six diagnoses listed. I present here only those occurring more than five times. Second, the morale of the patient and that of his physician being considered, it is serious to have forty-eight cases in which observations are so slight as to justify a negative diagnosis. It is a fact that should specifically interest the Committee on the Cost of Medical Care. These negative cases are not a reflection on the gastro-enterologist. They are duplicated more or less in every specialty, representing an honest recognition of the limitations of present knowledge. They are one of medicine's safeguards against omniscient quackery, representing also to quite an extent the failure of psychiatry to penetrate the medical curriculum beyond description of the psychoses.

TABLE 2.—*Motives*

Anxiety, chief	49	(33%)
Anxiety, subsidiary	26	
Total	75	
Discomfort, chief	76	(51%)
Discomfort, subsidiary	42	
Total	118	
Other motive, chief	25	(16%)
Other motive, subsidiary	13	
Total	38	

Table 2 shows the incidence of motives that have driven the patient to the physician. This anxiety, discomfort or other motive represents the ground on which the patient is standing no matter how he expresses his complaint. It is on this ground rather than on the complaint alone that the physician must meet the patient. If the physician does not appreciate the patient's point of view, he may not be able to guide him along the course he should follow in a treatment program. If he recognizes the patient's sensitivities, he has a most powerful lever to effect appropriate treat-

TABLE 3.—*Emotional Problems*

	Cases	Per Cent
Severe	29	19
Moderate	67	45
Subsidiary	16	11
Absent	38	25

ment. The third group, other motives, will be presented in greater detail farther on.

When anxiety or some ulterior motive has driven the patient to seek medical help there are apt to be related emotional problems that require study to understand the patient's complaint. When the motive of the patient is quite on the surface there are frequently unrelated psychologic problems that nevertheless may seriously affect treatment. Sometimes these emotional difficulties are so severe as to indicate psychiatric consultation. Usually they should be within the capacity of the gastro-enterologist. Some emotional problems are subsidiary, directly dependent on the physical problems, and will clear up through the treatment of the gastro-intestinal problem.

A serious problem was presented by a woman, aged 23, whose baby died from birth injuries four months before, the patient suffering severe lacerations and losing much blood. At the clinic she had a solemn appearance, spoke in low tones, and complained of pains under the heart, nausea and gas. The seriousness of her depression, expressed as down-heartedness and a belief that she could never have a baby, and frequent crying spells, came out during discussion.

TABLE 4.—*Correlation of Gastrodiagnoses with Emotional Problems and Motive*

Most Frequent Gastro-diagnoses	Total Cases	Emotional Problems				Chief Motive		
		Severe	Moderate	Subsidiary	Absent	Discomfort	Anxiety	Other
Ulcer	24	4 (17%)	8 (33%)	3 (12%)	9 (38%)	15 (63%)	6 (25%)	3 (12%)
Negative	48	9 (19%)	22 (46%)	5 (10%)	12 (25%)	21 (50%)	17 (35%)	3 (12%)
Hypo-acidity	14	4 (29%)	5 (36%)	2 (14%)	3 (21%)	5 (36%)	6 (43%)	3 (21%)
Visceroptosis	17	5 (29%)	10 (59%)	1 (6%)	1 (6%)	4 (23.5%)	9 (53%)	4 (23.5%)

A problem that every physician must meet was presented by a 17-year old protected orphan girl who complained: "I have sharp pains in my stomach; I can't eat; I have pains in the back of my head; I'm nervous and tired." While she was always fussy about eating, this became serious when she was thrown on her own and had to go to work. The first job she disliked; the second was interrupted by her illness. She was allowed to stop altogether and had since been living a protected life with an aunt. She solved her fear of the world and of independence in this way and wanted a diagnosis from the physician to justify her solution.

TABLE 5.—*Things Patients Fear*

	Cases	Negative	Confirmed
Cancer	16	7	0
Tumor	4	2	0
Ulcer	13	3	5
Heart trouble	9	3	0
Syphilis	4	1	0
Gallstones	3	1	0
Organic trouble	2	0	0
Pus, paralysis, diabetes, tapeworm, tuberculosis, fainting			

Table 4 must not be given too much weight. The number of cases are too few. It is, however, suggestive and stimulating to a more specific study. It will be noticed that from ulcer to visceroptosis there is a gradation throughout, and, as might be expected, discomfort as a motive and relative absence of emotional problems go together with ulcer, whereas visceroptosis shows an opposite tendency. There are two warnings to be issued here: First, that the psychiatrist pay attention to visceroptosis as a determinant of total responses; second, that the internist appreciate the mental components in the patient's search for help, including anxiety as possible determinants of visceral tone.

TABLE 6.—*Other Motives (Classified)*

Motive	Cases
1. Justification for invalidism (Example: ex-service compensation)	12
2. Social acceptability (Example: foul breath)	8
3. Reproductive satisfaction (Example: barrenness)	7
4. Health examination	6
5. Economic competence	3
Guilt compensation; plain diagnosis; birth control; kill time; to talk	

Table 5 practically explains itself. The source of the patient's fears varies. Occasionally the physician has been responsible through some disquieting statement, as by sending a note by the patient reading, "I fear this man has ulcer." More frequently the patient has known or been told of some one who had cancer or other conditions and identifies his problem with that.

TABLE 7.—*Important Emotional Problems*

Problems	Cases
1. Worry about condition	30
2. Unstable, worrying, spoiled, reticent personality	27
3. Sex maladjustments	15
4. Death: husband, mother, father, wife, children	14
5. Identification with illness of another	13
6. Physician's statements and examination	12
7. Financial worries	12
8. Unhappy marital situation	11
9. Restricted, uncongenial home	11
10. Marriage; engagement adjustment	10
11. Impotence, barrenness, sterility	9
12. Occupational maladjustments	9
13. Fear of serious illness experience	9
14. Children's problems	8
15. Venereal disease	7
16. Depression	6
17. Distrust of his body; read about diseases	5
18. Divorce	4
19. Poor emancipation	4
20. Unsatisfying defecation	3
21. Overweight	3
22. Physical sensitization—fatigue, infection, nutrition, sex cycle, and loss of sleep	3
23. Foul breath	2
24. Alcoholism	2
25. Physical handicaps	2
26. Major psychosis	1

When the acquaintance is a relative the identification is made easier, as also when it is emphasized by death from the disease. Fear of heart trouble seems to be encouraged somewhat by the lay use of the term "heartburn" in connection with gastric symptoms. There seem to be all grades, from a thoroughly justified fear to a phobia in which the disease that is feared stands as a symbol for a life problem that the patient cannot face.

With one or two exceptions, the group with other motives shown in table 6 is the most difficult one to bring over to the physician's point of view in treating pathologic conditions. On the one hand, they may not desire treatment; on the other, the obscurity of the motive presents a difficulty.

Table 7 is of importance only to show the scope of emotional problems which have a bearing on the patient's complaint, pathologic condition or treatment.

It is of interest that 47 per cent of the patients expressed dissatisfaction with previous medical attention. For the most part these felt that the physician did not understand the condition. In addition, there were other objections to physicians, such as these:

Doctor made me quit work to rest; that made it worse.
Doctor refused to make a Wassermann test.
Doctor ordered rest in bed but I had to work.
Doctor insisted on x-ray.
Doctor had not enough instruments to make diagnosis.
Doctor said it was nervousness.
Doctor said it would work out.
Doctor won't believe I'm sick.
Doctor refused x-ray.
Doctor cost too much.

The study revealed in addition a large number of pathologic misconceptions, such as "I have gas around my heart." These deserve mention only as they reveal the type of pathologic conditions that the public has learned; 36 per cent of the patients had these misconceptions.

Finally, I may say that I have presented this study from one side only, that of turning the attention of the gastro-enterologist toward the patient's behavior. In order to balance this it is equally important that the psychiatrist maintain a flexibility of perspective, and this study reveals facts that indicate the dangers of neglecting the gastro-intestinal tract of psychiatric patients.

CONCLUSIONS

Patients through their complaints express hidden motives that must be recognized if rapport and cooperation are to be assured. They have emotional or life problems that result in attitudes seriously influencing a plan of treatment. Often the unexpressed problems of the patient are more serious than the physical problem complained of.

It is possible, by taking time and allowing the patient to talk, to reveal hidden motives and emotional problems, and the use of these facts in handling the patient is a big factor in the art of medicine.

Psychiatry can probably make its greatest contribution to medical education by making the art of medicine more tangible and by making it available to the medical student in a way that will influence his everyday cases. Such an achievement in medical education, however, must come through pressure exerted on the psychiatrist by physicians in other fields and by avoiding a separation of the patient in bedside teaching into mental and physical.

370 Seventh Avenue.

ABSTRACT OF DISCUSSION

DR. WALTER D. SHELDEN, Rochester, Minn.: This problem is involved. I do not know that we have a solution for it, or that there is a treatment for the patient's complaints. I suppose we might ask: Why does a patient go to the doctor anyway? I presume his motive is that he has some problem on his mind that he cannot settle himself. He has some conception of something that he expresses in terms of defect or maladjustment or disease or lack of function in some part of his body which interferes with his accomplishing what he wishes to do in life. I suppose it would complicate the problem a great deal more if we were to ask: Why do people become afraid? I don't know whether it is a function of the body to be afraid, whether it is a function of the vegetative nervous system, or what it is. It is as deep a problem as the problem of light. We want to live and we want to pursue a course which will bring about happiness in some phase or other, and it is largely the patient's fear or the patient's reaction to the situation he is in that brings about fear to accomplish these things. I get a disturbance of function of the stomach when I come here to discuss this subject. It is an agreeable one but it requires a certain something which brings about an unfavorable reaction. I might say that the desire to get out of here is strong enough to produce painful sensation. If I wanted to ask some one here why I have a painful sensation I would have to present the situation to the doctor as a cause or as a reason for my gastro-intestinal upset. In fact, I usually get a hyperacidity before I discuss a paper, just from anticipation. One other point is that, given a certain motive, which the doctor suggested, how is it possible to judge whether a given motive or situation is adequate to explain the symptoms that the patient has? That is the most difficult problem. It is not difficult to find in any one's life some situations he dislikes that produce symptoms, too, but the question is, Do these situations produce disturbance of digestion or do other things that are comparable to the situation? It takes long continued interviews with people to reveal their difficulties and then to decide whether they are causing symptoms and whether an understanding of the situation is in any sense remedial. I know patients who suffer a great deal and to whom no one can give relief. Circumstances often make it impossible not to have trouble and live without getting symptoms; for instance, a young girl living with two people 80 years old. If she can be convinced that that is the cause of her trouble, she may perhaps feel better than if some disease were responsible.

DR. GEORGE S. STEVENSON, New York: We should not take the attitude that fear is of the same complexity and illusiveness as life itself. If we go on that basis we shall never achieve anything. We have plenty of reason for not going on that basis when we know that certain factors do exist to which we can directly trace fears. We know that identifications occur within families whereby the occurrence of disease in one person may easily result in its being feared by the person who makes the identification. A son will more readily fear cancer if it occurs in his mother than if it occurs in his school teacher. There are certain emotional relationships there that make that possible. Then we know also that there are forbidden activities in childhood, sex and otherwise, that produce problems of guilt which again form a basis for future fears of somatic retribution. So I do not think that we can consider that fear is beyond objective treatment. Fears have to be considered as objective. When a man in the clinic states that his trouble started when his mother died and there is a history of an extreme attachment, one has something that is objective data and it is something one can work with, as in the case of the Italian woman whose husband punched her. At the time I could not provide her with any better protection than she already had, but I think it could be made less incapacitating. In the case of the woman living with her parents, I do not know offhand what to do. There are plenty of medical problems for which we have no solution and certain of them have to be accepted as such.

Psychogenic Symptoms.—While in the majority of cases pain is attributable to, and adequately accounted for, by obvious physical causes, in some the severity of the pain and its persistence appear to be out of proportion to the physical condition, and in others no physical condition can be detected. In such circumstances the question arises. Is the pain in whole or in part psychogenic, or is the patient wilfully exaggerating or malingering? The answer to this question is often a matter of great difficulty, and an opinion can only be arrived at after a full consideration of all the data. Among these the following are deserving of special mention—namely, the situation and character of the pain, its constancy and intensity and circumstances which appear to influence it; the cause to which the patient attributes his pain, and possible misconceptions on his part which call for correction; the personality of the individual, his behavior, his surroundings, his suggestibility, and his general outlook on his case; his responsibilities and sense of responsibility; the existence of an inferiority complex, his financial position, and, it may be, the question of compensation and his attitude toward it.—Bramwell, Edwin: Some Clinical Aspects of Pain, *Brit. M. J.*, Jan. 4, 1930.

Clinical Notes, Suggestions and New Instruments

APPENDECTOMY FOR A NON-SHADOW-CASTING URETERAL CALCULUS IN A CHILD *

WILLIAM P. HERBST, M.D., MINNEAPOLIS

A girl, aged 6, with a negative family history, had been normal at birth, when she weighed 11 pounds 12 ounces (5.3 Kg.). She was breast fed for three months and then put on artificial feeding, which was satisfactory. Until 3 years of age the patient was well and developed normally in every way.

For the past three years she had been subject to periodic abdominal upsets consisting of general abdominal pain accompanied by nausea and vomiting, and lasting from two to four days.

April 15, 1929, an appendectomy was done elsewhere, without incident. According to the history, the appendix was not badly diseased. The child was home, April 23, eight days after the operation, and was feeling well. Two days later, April 25, she complained of the same old abdominal pain, with nausea and vomiting. The next day, April 26, she was up and about, with no complaint. April 27, she had another attack similar to the preceding ones. This was followed by two days of comfort and freedom from symptoms.

April 30, she had another attack which persisted until her entrance to the University Hospital, May 3. The evening previous to admission she had had an elevation of temperature to 100 F. This was the first time she had had any fever, so far as I could ascertain.

Urinalysis showed an acid reaction, a specific gravity of 1.014, a trace of albumin, numerous red blood cells, and some hyaline, granular and waxy casts. A stain was negative for tubercle bacilli.

Blood examination showed: hemoglobin, 86 per cent; red blood cells, 4,430,000, and white blood cells, 13,800, with a differential count of 80 per cent polymorphonuclears, 16 per cent lymphocytes, and 4 per cent mononuclears.

Roentgenograms of the gastro-intestinal tract were negative. A roentgenogram of the chest showed possible tuberculous mediastinal glands.

Test meal and stool examinations were negative.

I saw the patient in consultation, May 7, and found her pale but fairly well developed and nourished. She had several carious teeth, hypertrophic cryptic tonsils and palpable posterior cervical glands. The chest was slightly flat. The heart and lungs were normal. The abdomen had a recently healed low right rectus incision. There was slight tenderness in the right costovertebral angle and right upper quadrant. Rectal examination was negative. The temperature and pulse were normal.

A phenolsulphonphthalein test showed a return of 35 per cent the first hour and of 18 per cent the second hour, making a total of 53 per cent. Roentgenograms of the kidney, ureter and bladder areas were negative.

Cystoscopic examination, May 8, revealed that the bladder was normal. There were definite, apparently clear spurts from both ureteral meatuses, which appeared normal. The left ureter was catheterized with a number 4 catheter with no obstruction, and the urine was normal. Introduction of a number 4 catheter was difficult on the right side because of an obstruction encountered just within the meatus. This catheter was withdrawn with considerable hang, but following this a number 5 passed without difficulty. Urine from this side contained a few red blood cells and leukocytes. Right pyelo-ureterograms were made which demonstrated a filling defect about 3 by 4 mm. in the lower ureter about 1.5 cm. up.

Following this the patient was allowed to be up and around. She was comfortable until May 13, when cystoscopy was done again under gas anesthesia. There were clear spurts from both sides. Number 4, 5 and 6 catheters were passed in succession on the right side, with slight obstruction just above the meatus. Then number 5 and 6 catheters were passed and fixed in place until 10:15 a. m., May 15, at which time they were withdrawn with grating and a little pain. She was allowed to be up but experienced considerable right-sided abdominal pain from about noon until 2:30 p. m. The stone was recovered in a voided specimen at 6:30 p. m. Following this, she was relieved of all discomfort and pain.

COMMENT

This case is reported because it is the first instance in which a child so young had an appendectomy for ureteral calculus, and also because of the non-shadow-casting property of the stone. Shadow-casting stones now make up only about 2 per cent of urinary calculi.

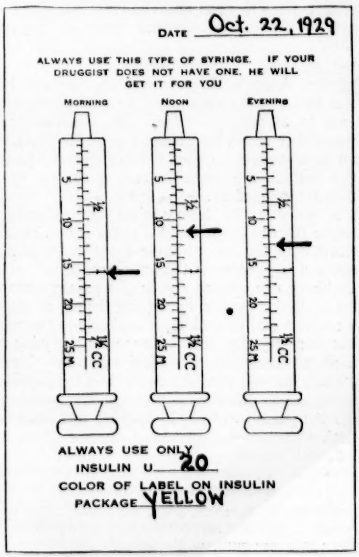
Medical Arts Building.

* From the Department of Urology, University of Minnesota Medical School.

A GRAPHIC DEMONSTRATION OF INSULIN DOSAGE

HAROLD M. BOWCOCK, M.D., ATLANTA, GA.

Many diabetic patients have difficulty in understanding the relationship between volume and unit dosage of insulin. This difficulty is made greater by the variety of hypodermic syringes in use. Each type of syringe possesses certain advantages and disadvantages. The "insulin syringe" with its multiple graduations for different strengths of insulin may be particularly confusing to unintelligent patients. Syringes of 1 cc. capacity are more accurate for the measurement of small quantities, and should be used for U-40 and U-80 insulin. On the other hand, small syringes are usually less substantial and less easily handled by the inexperienced than a larger syringe. A type of syringe which can be replaced readily should be chosen.


DATE Oct. 22, 1929
ALWAYS USE THIS TYPE OF SYRINGE. IF YOUR DRUGGIST DOES NOT HAVE ONE, HE WILL GET IT FOR YOU
MORNING
NOON
EVENING
ALWAYS USE ONLY
INSULIN U 20
COLOR OF LABEL ON INSULIN PACKAGE YELLOW

Graphic demonstration of insulin dosage for convenience of patient.

While I was directing the treatment of sixty-five colored diabetic patients in the outpatient department of Grady Hospital at Emory University,[1] the foregoing difficulties became apparent and demanded a solution. Consequently, blanks such as that shown here were printed and assembled in tablet form. With each change in insulin dosage, the patient receives a graphic record of the dose of insulin to be taken morning, noon and

1. Bowcock, H. M.: Diabetes Mellitus in the Negro Race: A Study of One Hundred Consecutive Cases, South. M. J. 21: 994 (Dec.) 1928.

evening, and a record of the strength of the insulin prescribed. Similar blanks may be used to picture any type of syringe. Such a pictorial method facilitates changes in insulin dosage by mail.

478 Peachtree Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

VIOSTEROL IN OIL 100 D (See THE JOURNAL, Aug. 31, 1929, p. 693).

Mead's Viosterol in Oil 100 D.—A brand of viosterol in oil 100 D, N. N. R.

Manufactured by Mead Johnson & Co., Evansville, Ind., under U. S. patent 1,680,818 (Aug. 14, 1928; expires 1945) by license of the Wisconsin Alumni Research Foundation.

Mead's viosterol in oil 100 D is prepared by dissolving ergosterol in arachis oil; the solution is then irradiated by exposure in thin layers to a field of ultraviolet radiation, and the product obtained is biologically assayed and then diluted with sesame oil in sufficient amount to adjust it to the potency of viosterol in oil 100 D, N. N. R. The final dilution is also biologically assayed.

LENIGALLOL (See THE JOURNAL, April 6, 1929, p. 1181). The following dosage form has been accepted:

Lenigallol-Zinc Ointment: It contains lenigallol 6 per cent in a base composed of zinc oxide ointment-U. S. P.

SENSITIZED BACTERIAL VACCINES—SERO-BACTERINS (See New and Nonofficial Remedies, 1929, p. 383).

H. K. Mulford Company, Philadelphia.

Typho-Serobacterin-Mulford (Sensitized Typhoid Vaccine) (see New and Nonofficial Remedies, 1929, p. 384).—Also marketed in packages of three syringes, being three immunizing doses, the first containing 1,000 million and the second and third each containing 2,000 million killed typhoid bacilli.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

W. A. PUCKNER, Secretary.

HERNIAL (INYECCIONES PROLIFERANTES OBTURADORAS DEL DR. E. PINA MESTRE) NOT ACCEPTABLE FOR N. N. R.

The product "Inyecciones Proliferantes Obturadoras," stated to be manufactured by Dr. E. Pina Mestre of Barcelona, Spain, was presented to the Council for consideration under the name "Hernial" by the Vincent Ruiz Company, New York. According to the information submitted by this firm, "Each ampule contains approximately 98% of alcohol, and the balance consists of the following ingredients expressed in percentages: 25% Krameria, 16% Catechu, 15% Rosa Canina, 15% Rosa Centifolia, 14% Vaccinium Myrtillus, 15% Monesia." No statement of composition appears on the submitted trade package, on which the product is called "Inyecciones Proliferantes Obturadoras" and not "Hernial."

In a paper sent by Dr. J. S. Hall of New York it is stated that the product combines the alcoholic tinctures of a number of official plants noted for their stimulating and astringent properties; these characteristics, it is stated, are due to the peculiar tannic acid composition of each. The preparation is proposed for use by injection in the treatment of hernia. It is claimed in a letter sent by the Vincent Ruiz Company that injection of the contents of the ampule "around the inguinal ring . . . causes a proliferation of connective tissue which blocks the canal and prevents any protrusion . . . one ampule is injected daily for seven or eight days and then the reaction is allowed to subside, after which the physician determines whether more injections are required."

With regard to the rationality of the injection of astringent substances in the treatment of hernia, a consultant of the Council points out that there have been from time to time various treatments other than operative advanced for the cure of hernia, many of which have been tried and discontinued and that inasmuch as hernia is a mechanical thing, that is, a sac pushed down through a hole or through a rent, constant pressure above and improper support below, it would seem that only a mechanical repair could be the advisable way of maintaining an equality between the pressure from above and the resistance of the wall below.

He further holds it conceivable that a substance might be injected into the tissues which would set up so much reaction that hard fibrous tissue would be formed, which would fill a narrow opening in the abdominal wall, but not conceivable that it is good surgical judgment to inject an irritating substance blindly around a sac which frequently contains part of the abdominal viscera covered with sensitive membrane such as peritoneum, allowing adhesions to form around this structure, with the idea that the adhesions will only form to close the opening and not form also to close the intestine, which if allowed to remain closed results in death.

It would not seem logical, he holds, from any standpoint, to inject an irritating substance outside a thin sac, which was so irritating that it would cause strong adhesions to form, and without strong adhesions the hernia cannot be repaired.

He therefore concludes that injection of irritating substances around hernial sacs is a dangerous procedure, which might easily result in serious harm to a patient; also, that as hernia is a mechanical break in a supporting wall, mechanical fixation of this supporting wall is necessary for repair of the hernia.

In a letter of the Vincent Ruiz Company to a layman, forwarded to the Council, it is stated that the method of treatment of hernia by injection is by far the most efficient means of cure. This letter further shows the way in which the product is marketed as follows: ". . . this treatment is given by duly registered and competent physicians. . . . Come in and talk it over with us—we will show you reports to back up every thing we say. You will see scientific data, as well as letters from people who have been cured. If you want to talk to one of the doctors who is curing Rupture by this means, we will gladly give you his name and address."

The Council declared "Hernial" (Inyecciones Proliferantes Obturadoras del Dr. E. Pina Mestre) unacceptable for New and Nonofficial Remedies because it is an unscientific, indefinite and complex mixture of astringent drugs proposed for use in the treatment of hernia, for which unwarranted claims are advanced and the use of which is not warranted by the available evidence but, on the contrary, is considered to be dangerous.

PINNECKSIN NOT ACCEPTABLE FOR N. N. R.

According to the label, "Pinnecksin" is a "Laxative" and "Stomachic." According to International Food Products, Inc., the importers of the preparation, "The originator of this medicine claims for same according to original recommendations said to be in his personal possession and given by some of the foremost liver and stomach specialists of Germany, that this medicine of his would without doubt cause a thoro elimination of gallstones without a surgical operation, he furthermore claims that his medicine would prove of great benefit in the treatment of most any sort of intestinal ailment outside of cancer or ulcer."

No statement of the composition of Pinnecksin appears on the label but the importer states that the preparation is a compound of extracts of "32 roots and herbs." According to the information submitted to the Council these are: juniper berries, licorice, guaiac, pyrethrum root [Bertram-root], angelica root, ginger, "colmus" [calamus?], cassia buds, mace, rhubarb, myrrh, clove, cardamom, agaric, zedoary, gentian root, manna, fennel, theriac, woodruff, star anise, curacao peel, cinnamon, snake root, senna, scouring rush, frangula bark, orris root and hop. The preparation also contains a considerable proportion of alcohol.

Pinnecksin is unacceptable for New and Nonofficial Remedies because it is a complex mixture representing aromatic, bitter and cathartic drugs in undeclared amounts which is offered under a noninforming name, with unwarranted therapeutic claims which may lead to its ill advised and harmful use by the public.

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SATURDAY, FEBRUARY 1, 1930

SOME ASPECTS OF OPIUM ADDICTION

The problem of addiction to opium is an old one that has challenged the scientific acumen and investigative ingenuity of many persons.[1] One of the most remarkable aspects is the well known tolerance that addicts develop to remarkably large doses of the opium alkaloids—doses far greater than the amounts that are speedily lethal for the unaddicted. Persons unaccustomed to the drugs usually succumb to a dose of from 3 to 6 grains of morphine (0.2 to 0.4 Gm.), with an unfavorable prognosis for any intake above 4 grains (0.26 Gm.). Yet the addict may consume ten or fifteen times this amount day after day without untoward results. What is the explanation of such a tolerance? Is there a relation between the capacity of the body to destroy the noxious agent and its power of developing tolerance to the drug after repeated dosage? This explanation has been ventured, notably by Faust,[2] despite the well known tendency of the organism to resist changes in its metabolic functions. In the case of tolerance to other drugs, such as arsenic, it has been suggested that the readiness of absorption from the alimentary tract is gradually impaired, so that more and more of the chemical compound must be administered to secure actual transfer into the circulation. Such an explanation will not apply, however, to morphine, which can be used to the point of marked addiction by hypodermic introduction, thus averting all possibility of failure of intestinal absorption.

In the elaborate series of investigations on opium addiction conducted at the Philadelphia General Hospital by Light [3] and his associates, excellent opportunities have been afforded to measure anew the elimination of morphine, on constant dosage, during various conditions. If one may regard the difference between the amounts of the alkaloid administered and those excreted as a measure of the quantity of morphine destroyed within the body, the results are extremely interesting. Daily administration of 15, 30 and 60 grains (1, 2 and 4 Gm.) resulted in an average percentage elimination of only 8.7, 9.8 and 10.7, respectively, the ratio being remarkably constant. Fecal elimination of morphine fell far below the urinary level but was too variable to justify general conclusions. Abrupt withdrawal of morphine resulted in a rapid fall in the urinary excretion, contrary to what one would expect if there had been marked storage of the drug. The general features just described were not changed during such severe disease as lobar pneumonia in an addict. It is hazardous to venture any interpretation of these well attested facts of the "disappearance" of morphine until more of the possibilities of its intermediary changes in metabolism are elucidated.

There is one encouraging outcome clearly manifested by these extensive studies of addicts. The addiction to morphine is not characterized by physical deterioration or impairment of physical fitness aside from the addiction per se. This may seem highly surprising. Yet detailed clinical examinations of many patients gave no evidence of change in the circulatory, hepatic, renal or endocrine functions. Light remarks that when it is considered that the persons had been addicted for at least five years, some of them as long as twenty years, these negative observations are highly significant. Thus there are substantial grounds for the belief that, were it possible to relieve the addict of his addiction, complete rehabilitation might be expected. This makes the accomplishment of cure manifoldly desirable when the prospect of success leads to a healthy man rather than to a physiologic derelict.

According to Light, the abrupt withdrawal of morphine was accompanied by only slight changes in the physiologic mechanisms studied, changes that did not afford adequate explanation of the well known and challenging withdrawal symptoms. The Philadelphia research, which warrants careful reading, indicates the necessity for a study of the addict from some new point of view in order to discover the factors which induce and maintain the state of addiction and which on abrupt withdrawal of the drug elicit the withdrawal symptoms.

1. Terry, C. E., and Pellens, M.: The Opium Problem, Haddon Craftsmen, Camden, N. J., 1925.
2. Faust, E. S.: Ueber die Ursachen der Gewohnung an Morphin, Arch. f. exper. Path. u. Pharmakol. **44**: 217, 1900.
3. Light, A. B.: Opium Addiction: XI. General Summary, Arch. Int. Med. **44**: 870 (Dec.) 1929.

THE DIAGNOSIS OF PANCREATIC DISEASE

Tests of the functional capacity of organs that cannot be satisfactorily examined by direct methods of investigation have come to have great importance in clinical medicine. In illustration of this, one need merely recall the current procedures for ascertaining the sufficiency of the renal functions; in somewhat less striking degree, the indirect determinations of the relative normality of the activities of the liver are beginning to engage the attention of circumspect physicians. Disorders of the pancreas, aside from the disturbances represented by hyperglycemia and glycosuria, have been particularly difficult to discover and

interpret with confidence. As the situation has been recently expressed,[1] whether one is dealing with the dramatic suddenness of an acute hemorrhagic pancreatitis, the silent jaundice in carcinoma at the head of the pancreas, the variable and indefinite symptomatology of chronic pancreatitis or the insidiously developing pancreatic cyst, a large proportion of pancreatic lesions remain unrecognized clinically and are first diagnosed during the course of a laparotomy or at postmortem examination. This, the authors add, is not because the pancreas is so rarely the seat of disease, for it is the seat of maladies far more frequently than is generally supposed.

One possibility of securing diagnostic information reverts into prominence from time to time while many other proposed tests have "fallen into desuetude." The pancreas produces a number of enzymes, one of which—the amylase—readily lends itself to detection and fairly accurate quantitative measurement. Ordinarily the amylase of the pancreas is discharged into the intestine in the external secretion of this gland. It is conceivable, however, that when the pancreatic ducts are obstructed an unusual amount of amylase may be diverted into the blood stream; or that in degenerative changes the output of the enzyme will be greatly curtailed; or that inflammatory changes may alter the normal distribution and transport of the pancreatic product. Of course, it is by no means impossible that amylase might reach the blood from nonpancreatic sources. However, a considerable number of careful investigators have reported that the values for amylase in the blood are quite constant in normal persons and are unchanged by the nature of the diet.

Stimulated by such considerations, a group of investigators [1] at the Department of Surgery in the Washington University School of Medicine at St. Louis have reinvestigated the concentration of amylase in adult human blood plasma by an improved method adapted to use in clinical laboratories. These workers, too, secured uniform values in unselected persons in whom there was no suspicion of disease of the acini of the pancreas. On the other hand, definite deviations from the "normal" range of values were found in a considerable number of cases in which disease of the pancreas was found either at operation or at necropsy. In most instances, but by no means all, a moderate or marked increase in the blood amylase was found. This may be due to conditions involving obstruction to the flow of pancreatic juice and leading to absorption of the pent-up enzyme into the blood. The interference with orderly secretion may be due to neoplasms in some instances. On the other hand, low amylase values may ensue when there is atrophy of the acini leading to a lowering of the normal absorption due to a decreased enzyme production. In acute pancreatitis there seems to be an abnormal absorption of enzymes into the blood owing to the acute inflammatory changes and tryptic digestion of the walls of the ducts, so that, as the St. Louis observers believe, the secretion instead of flowing on into the duodenum makes its way into the surrounding tissues and into the blood and lymphatics. At any rate these students of the subject say that in their experience the estimation of blood amylase has been of undoubted clinical value both in excluding suspected disease of the pancreas and in adding conclusive confirmatory evidence when the clinical picture was indefinite or vague. They add that jaundice, per se, has no influence on the amylolytic power of human blood unless disease of the pancreas is present. It remains to be seen whether more extensive statistical evidence gathered from many sources will sustain the promise of usefulness of this test for pancreatic integrity.

1. Elman, Robert; Arneson, Norman; and Graham, E. A.: Value of Blood Amylase Estimations in the Diagnosis of Pancreatic Disease, Arch. Surg. **19**: 943 (Dec.) 1929.

ISOLATION OF THE CRYSTALLINE FEMALE SEX HORMONE

At the thirteenth International Congress of Physiology in Boston, held in August, 1929, Dr. E. A. Doisy of St. Louis and his co-workers C. D. Veler and S. Thayer announced for the first time the isolation of the female sex hormone in crystalline form.[1] Subsequently, Dr. A. Butenandt, assistant to Professor Windaus in Göttingen, announced that he, too, had isolated the hormone of the female sex glands in chemically pure crystallized form. Butenandt stated that his preliminary article was published because he had learned of the report of Doisy's discovery before the international congress.[2] However, the description of the product did not appear until the December 27 issue of the *Deutsche medizinische Wochenschrift* and in this article Butenandt completely ignores the Doisy announcement. As might have been anticipated, the German investigator promptly conferred on his product a trade name controlled through a German manufacturer. Butenandt points out incidentally that the substance is free from nitrogen and sulphur, and that it has no connection with protein substances and carbohydrates. In his opinion, a chemical analysis may make it possible to produce the hormone synthetically.

It has been known that the female sex hormone is necessary for the normal development of sex characteristics and for the proper functioning of the female genital organs. During pregnancy the female organism is especially rich in this substance. It may be assumed, therefore, that this hormone plays an important part in pregnancy, during which period the hormone is even excreted in the urine. In fact, the urine of pregnant women has been used as a source of the estrus-producing principle by a number of investigators ever since the announcement of the observations by Aschheim

1. An abstract of the paper appeared in the American Journal of Physiology **90**: 329 (Oct.) 1929.
2. Die Naturwissenschaften **17**: 879, 1929.

and Zondek in 1927. In view of the ready accessibility of the raw material and the economy in labor and solvents, it was logical that both Doisy and Butenandt should have used urine as the starting point in the isolation of the estrus principle. Butenandt's investigations were made with an oil prepared from the urine of pregnant women. The oil, which was supplied for these experiments by the chemical manufacturers, had a high potency. If one terms "a mouse unit" the amount of hormone-containing substance sufficient to produce rutting phenomena in a castrated mouse, 1 Gm. of the oil had the potency of not less than 30,000 mouse units. By thorough purification, Butenandt was able to remove many substances associated with the hormone and to obtain a purified oil that possessed an astonishingly high potency. One gram of the oil would serve as a stimulant for 500,000 mice. By means of distillation in vacuo, the oil was further concentrated; when finally crystallized, the substance had a potency of eight million mouse units per gram. Doisy previously had stated that the assays of his crystals obtained after a large series of recrystallizations showed a potency of more than two million Doisy-Allen rat units per gram. As one rat unit is apparently equivalent to four mouse units, it is evident that in terms of mouse units the Doisy preparation must be equal to more than eight million mouse units per gram.[3] The crystallized hormone is readily dissolved in alcohol, acetone, chloroform and benzene; in fact, Doisy has separated it from urine with both olive oil and chloroform. From diluted alcohol, it crystallizes in colorless, thin platelets. Butenandt reports that his crystals melt at a temperature of about 240 C., and the properties were confirmed in many hundreds of mice. The production of the concentrated product by these American and German investigators will doubtless expedite experimental work with the estrus hormone on an entirely new basis, particularly as Doisy has brought out that both the chemical and the physiologic evidence points to the identity of the active principle obtained by extraction either from liquor folliculi or from the urine of pregnant women.

The name given to his product by Butenandt is a proprietary name previously applied by the German manufacturer to a noncrystalline ovarian extract. The pure glandular principle is not yet available commercially. Obviously this will cause great confusion in the identification of the product in the future, and Americans will do well to avoid referring to the material by any name except the crystalline female sex hormone. Its discoverers, in consultation with the Council on Pharmacy and Chemistry, will no doubt choose a scientific name suitable to the nature of the product and to American conditions.

3. The relative activity of mouse units and rat units, respectively, is discussed in the preliminary report of the Council on Pharmacy and Chemistry, Ovarialhormon Folliculin Menformon, J. A. M. A. **91**: 1193 (Oct. 20) 1928.

SCIENCE AND CULTISM

Now and then the medical profession is upbraided by the proponents of various notions in the field of health and science because it fails to give to their claims what they conceive to be adequate consideration. Again and again, the difficulties of Galileo, Harvey, Jenner and Pasteur, when they attempted to convince the leaders of their times of the importance of their discoveries, are cited as evidence that scientists are intolerant. Apparently cultists and others who have had but little experience in reasoning and logic, or with what is known as the scientific method, fail to take into account the fact that the world has moved since the time of the prophets, and that science has advanced more in the past fifty years than in the previous fifty centuries. James Harvey Robinson wrote an interesting essay on "The Importance of Being Historically Minded." With a proper perspective, one realizes that science is today in a position to demand evidence to an extent that might not have been warranted in a previous period when the whole world was dominated by magic and mysticism.

Recently, Mr. Chester Rowell, feature writer for the San Francisco *Chronicle*, discussed the appeal for tolerance made by faith-healing cults in the Los Angeles *Times*, following an exposé by the editor of THE JOURNAL of some of the weird quackeries existing in Los Angeles. Mr. Rowell says:

> But the appeal for "tolerance," by one "school" of another, is an example of a common fallacy. There is no "tolerance" of astrology by astronomers. There is no "tolerance" of fortune-telling by psychologists, nor of perpetual motion inventors by physicists. Geologists do not locate oil or water by dowsing with a forked stick, nor "tolerate" those who do. Entomologists do not "tolerate" those who would exterminate insect pests by interfering with their spontaneous generation. Scientific agriculture does not "tolerate" the theory that potatoes grow wrong unless planted in the dark of the moon. All these "schools" exist, and they are all rejected outright as unscientific superstitions by every scientist in the world.
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> On the other hand, good Catholics tolerate the Holy Rollers, and Buddhists tolerate the Mormons. Atheists tolerate the faith of Christians and Christians the unfaith of atheists. Protestants and Christian scientists tolerate each other's religion, each respecting the right of the other to seek God in his own way. But the law of the land did not tolerate polygamy, when the Mormons said it was religion, and the Regents of the University of California do not permit an anti-vaccinationist student to endanger the health of other students, even though he calls his objection religious.
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> So in medicine. If it were a matter of faith, dogma or canons, one "school" should "tolerate" another. If it is a matter of science, then the only distinction is that of scientific and unscientific. And between science and non-science there is no equality of right, and no basis for tolerance. The fact that millions of devout people in India believe in casting their horoscopes by the stars does not erect them into a "school" of astronomy, nor impose on astronomy any obligation to recognize them. They are neither "regular" nor "irregular" astronomers —they are not astronomers at all. Neither is any unscientific theory or practice of healing any part of the science of medicine. There are only two sorts of medicine, scientific and unscientific. And of the unscientific "schools," science has only this to say—that they are unscientific.

How, then, shall we distinguish which principles and practices of healing are scientific, and which are not? The simplest test is that which we unhesitatingly apply in every other branch of knowledge. That is the judgment of scientists. If the

scientists say that a certain thing is scientific, we accept it as such. If they all say it is unscientific, we say likewise, at least until it has succeeded in convincing them. Every scientific university in the world teaches astronomy, and not one teaches astrology. All of them teach chemistry and not one teaches alchemy. Every university in the world teaches scientific medicine, and not one of them—not a single one in the whole world—teaches or recognizes any of the "schools" or sects for which the *Times* speaks. If the unanimous voice of science means anything, this is its verdict.

The next test, and the decisive one, is that of method. Scientists may be mistaken, sometimes, in their results and conclusions. Sometimes a thing which seems true in the light of incomplete information becomes only partly true in the light of later discoveries. But science is not mistaken in its method. That method is systematic observation and experiment, and the submission of these observations and experiments to the scientists of the world, for them to repeat, to test and to scrutinize. Whatever pursues that method and is approved by that test is scientific—including, in medicine, light rays for tuberculosis, diet for many ailments and hydrotherapy for certain mental conditions. Whatever does not proceed by that method, or fails by that test, is unscientific—including all the cults, sects and schools which Dr. Fishbein rejects and the *Times* defends.

Mr. Rowell has placed his finger unerringly on the weaknesses of the cultists. His logic might well serve as a text in the schools, not only that it might aid the younger generation in learning the art of reasoning and judgment, but also that physicians might realize the basic folly of the strange schemes which are constantly being introduced to the public around them.

Current Comment

NEW TREATMENTS FOR CANCER

In this issue of THE JOURNAL appears a letter from Drs. Walter B. Coffey and John D. Humber relative to an experimental method of treating cancer which involves the injection of extracts of the suprarenal cortex. The work, as may be seen, is in the earliest of experimental stages and hardly sufficient on which to base definite claims. During recent years, reports have appeared frequently to the effect that the injection of various substances has produced changes in carcinomatous tissue. Such changes followed the injections of nonspecific protein in the form of typhoid vaccines, milk products and extracts of plant tissue. Similar results have followed the injection of various metals, alone or in combination. The experiments are of great interest as revealing the character of cancer tissue, but the method is far from anything in the nature of a specific method of treating cancer leading to cure or even to alleviation. Throughout the world, in numerous laboratories, experiments are being carried on with a view to learning the nature of the cancer cell and the biologic processes that determine its existence. Every experiment is of interest in this field, in which knowledge is relatively slight. So great, however, is the demand of the public for some certain remedy that every step in the study of cancer is likely to lead to exaggerated statements in the press concerning the possibilities of cure and to the deceiving of thousands of incurable sufferers who crave relief from their pain. Medical investigators have been forced to surround their laboratories with all the guards and paraphernalia formerly associated with the secret service. Such an attitude on the part of the public does nothing to hasten progress and may do much to impede research in a field in which it is badly needed. The claims of Drs. Coffey and Humber, as are revealed in the item published this week, have, like those of most investigations, been exaggerated in current reports.

THE HEMATOGENOUS INFECTION OF WOUNDS

One of the tantalizing experiences of the surgeon is the development of infection in wounds that are believed to be surgically clean. It is easy, as it is customary, to ascribe such an outcome to bacterial contamination from extraneous sources; but to the operator who is accustomed to employ exemplary care in a rigorous aseptic and antiseptic technic, the assumption of uncontrollable invasion of micro-organisms is both disconcerting and discouraging. Perhaps he will find some solace in recent experiments by Sager and Nickel,[1] who have reached the conclusion that the traumatized or injured tissue of surgical wounds acquires a lowered resistance, so that it may attract micro-organisms that chance to be circulating in the blood. These investigators produced abscesses by the subcutaneous injection of silver nitrate. Under ordinary circumstances the material aspirated was sterile, but after the intravenous injection of readily recognized bacteria a number of such abscesses became infected secondarily. As unusual streptococci were selected for the tests, and the same strains were subsequently found in the originally sterile abscesses, the likelihood of contamination seems to be ruled out. Frequently the wounds showed infection after the blood had actually become bacteria-free. Such observations raise the question, at any rate, whether a postoperative wound infection may not sometimes be of hematogenous origin in the course of a transient bacteremia. The hematogeneous infection of wounds has long been recognized as a clinical possibility.[2] The proofs, on the other hand, have not been abundant or thoroughly convincing.

"IMMUNE FIBRIN"

A new serologic test of clinical interest and theoretical importance is suggested by recent studies of the interaction between serum and fibrin in certain infectious diseases. Fuchs and von Falkenhausen [3] of the physiologic institute at the University of Breslau report that, in certain microbic infections, human serum has the power of dissolving normal human fibrin and fibrin from patients suffering from heterologous infections but is inactive against fibrin from the same infection. They confirmed this observation with the serum and fibrin of artificially immunized horses, reporting specific "immune fibrins" refractory to homologous antiserums. The suggested possibility of a specific fibrin

1. Sager, W. W., and Nickel, A. C.: Localization of Bacteria in Tissues of Lowered Resistance, Arch. Surg. **19**: 1086 (Dec.) 1929.
2. Findlay, G. M.: Histamine and Infection, J. Path. & Bact. **31**: 633 (Oct.) 1928.
3. Fuchs, H. J., and von Falkenhausen, M.: Ueber das Verhalten von Immunserum und Immunfibrin, Biochem. Ztschr. **178**: 155, 1926.

not absorbed by an individual's own serum is of pathologic interest and suggestive of new methods of therapeutic attack. The suggested removal or denaturization of a specific immunity factor during the process of fibrin formation might conceivably account for the historic failure of so many proposed antiserums, a possibility suggested on quite different grounds by certain American immunologists.[4]

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association through its Bureau of Health and Public Instruction, broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of February 3-8 is as follows:

February 3. Nostrum Advertising.
February 4. Radium Fakes.
February 5. Poverty and Crime.
February 6. The Man-Eating Microbe.
February 7. Waging War on Ants and Cockroaches.
February 8. Rope Skipping.

Evening Health Hints from Hygeia, 8 o'clock, Central Standard Time

February 3. Excessive Starch in Diet Leads to Pellagra.
February 4. Signs of Cancer.
February 5. Study Conduct of Feebleminded.
February 6. The Dangerous Type of Movie Film.
February 7. The Child and the Movies.
February 8. U. S. Chemists Analyze Fresh Fruits.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Douglas L. Cannon, Montgomery, formerly state health commissioner, has accepted a position as director of the Alabama Training Station for Public Health Officers. —Robert R. Moton, principal of Tuskegee Normal and Industrial Institute, Tuskegee, is to be awarded the gold medal and $1,000 honorarium of the Harmon Foundation for achievement in the field of race relations, it has been announced. Mr. Moton, who is the first negro to receive the award, is chairman of the executive committee of the Jeannes Fund for rural education among negroes.——Dr. Walton H. Anderson, Decatur, addressed the Morgan County Medical Society, January 2, on "Ionization of the Middle Ear Cavity in Otitis Media," and Dr. John C. Bragg on "Treatment of Eclampsia."——Dr. Edward L. King, New Orleans, read a paper, recently, before the Escambia County Medical Society on "The Toxemias of Pregnancy."——Dr. Stuart Graves has tendered his resignation to the Alabama State Board of Health as acting state health officer; Dr. Graves is also dean and professor of pathology at the University of Alabama School of Medicine.

COLORADO

Clinical Bulletins for Practitioners.—The University of Colorado School of Medicine and Hospitals, Denver, is issuing a series of bulletins for general practitioners in that state. The first is entitled "Treatment of Neurosyphilis" and was prepared by the psychopathic hospital staff.

4. Manwaring, W. H., and Azevedo, J. L.: Are Serum Antibodies Identical with Their Precursors in Living Tissues? J. A. M. A. **91**: 386 (Aug. 11) 1928.

DELAWARE

Society News.—The Medical Society of Delaware held its one hundred and fortieth annual meeting at Farnhurst, Oct. 8-10, 1929. THE JOURNAL erroneously stated, Nov. 2, 1929, that this was the fortieth annual meeting.——The Sussex County Medical Society was addressed, Dec. 12, 1929, at Seaford by Dr. Clealand A. Sargent, Dover, on "Scarlet Fever."

Six Years of Milk Control.—The first state milk regulations were passed by the board of health in 1924. One of the principal requirements was that dairymen selling raw milk must have their herds tested for tuberculosis and maintain a yearly test by an accredited veterinarian. There was opposition at the time, but all raw milk sold in Delaware now comes from tuberculin tested cows. In 1924 the percentage of milk samples showing a clean sediment disk was less than 4, whereas in 1929 it was 71, indicating a marked improvement in the cleanliness of the milk. The average bacterial count for 1924 was 175,000; in 1929 it was 45,000. Clean milk is one of the three main factors given for the decrease in the diarrhea and enteritis death rate from 40 in 1924 to 28.7 in 1928.

DISTRICT OF COLUMBIA

Personal.—Carl Voegtlin, Ph.D., Hygienic Laboratory, U. S. Public Health Service, gave an address on "Chemistry Applied to Medicine," recently, at the dedication of the Jones Laboratory of Chemistry at the University of Chicago.——Dr. James N. Greear, Jr., has been appointed professor of ophthalmology at Georgetown University School of Medicine, succeeding Dr. John W. Burke, resigned.

Medal Awarded for Influenza Work.—Major George C. Beach, Jr., medical corps, U. S. Army, has been awarded the Distinguished Service Medal. The citation reads as follows: "George C. Beach, Jr., Major, Medical Corps, United States Army. For exceptionally meritorious and distinguished services. At the time of the influenza epidemic in 1918, Major Beach was serving as camp surgeon at Camp Greene, North Carolina. By his foresightedness in providing ample hospital facilities during the early stages of the epidemic and by his efficient action in directing the care of patients, he was primarily responsible for a large reduction in the mortality rate at that camp. His efforts were untiring and he continued until he was stricken with the malady in its most serious form. He showed a rare devotion to duty in that, although himself a sufferer from the disease, his efforts were unabated." Major Beach was born in Kansas.

"Naturopathy" Defined.—According to the definition fixed by the Commission on Licensure to Practice the Healing Arts in the District of Columbia, "naturopathy in the practice of the healing art is the use of such physical forces as air, light, water, vibration, heat, electricity, hydrotherapy, psychotherapy, dietetics, or massage, but shall not include palpating, analyzing and adjusting the articulations of the spinal column, the administration of drugs or medicine, surgery or the application of x-rays or radium." It was necessary for the commission to define the term in order that the status might be determined of sixty-eight naturopaths who had filed applications with this commission to practice under the recent Act of Congress regulating the practice of healing arts in the district. All the applications are based on the section of the law giving those practicing before its passage last year the right to continue to practice under registration with the commission. Their practice must be confined within the definition made by the commission.

ILLINOIS

Tularemia in 1929.—The greatest prevalence of tularemia recorded for any one year in Illinois was in 1929, when, up to December 10, seventeen cases had been reported. All but three of the cases occurred in the southern section of the state; in most instances, rabbits were given as the source of infection.

Personal.—Dr. George S. Edmonson, Clinton, was recently appointed superintendent of the Kankakee State Hospital, Kankakee.——Dr. Louis J. Smith, Chester, has been appointed physician at the Southern Illinois Penitentiary to succeed Dr. George Hoffman, who resigned after having held the position for ten years.——Dr. and Mrs. Isaac F. Harter, Stronghurst, recently celebrated their fiftieth wedding anniversary.—— Dr. Henry H. Bishop is reported to have been discharged as health officer of Bloomington, and arrested by Federal Commissioner Howard on a charge of irregularities in prescriptions for narcotics. Dr. Bishop, who was not licensed to practice in Illinois, came to Bloomington from Cadiz, Ky., where he was health officer of Trigg County.

Chicago

Students' Tuition and Professors' Salaries Raised.—The University of Chicago announced, January 21, that tuition in all departments of the graduate schools of arts, literature and science will be raised from $30 to $100, and in the law and medical schools from $100 to $125 beginning with the summer quarter. The change is said to be for the purpose of providing means to increase the salaries of professors and instructors.

Personal.—Harrison A. Dobbs, associate professor of social economy, University of Chicago, has been chosen by the National Probation Association to study a group of delinquent children who are court wards. The work will be financed by a grant of $33,000 from the Rockefeller Foundation.——A bas-relief of Mr. and Mrs. A. Montgomery Ward, in the foyer of the Montgomery Ward Memorial Building on McKinlock Campus, Northwestern University, was dedicated, January 14. The building houses the laboratories and clinics of the medical and dental schools.

Society News.—The Chicago Urological Society was addressed, January 23, by Drs. Robert H. Herbst and Hugh J. Polkey on "Renal Resection: Including an Experimental Study of Postoperative Function"; Dr. C. Otis Ritch, "New Method of Treatment for Acute Gonorrheal Prostatitis," and Drs. Charles B. Huggins and Furman H. Entz, "Some Factors in the Etiology of Hydrocele."——Among others, Dr. Arthur Weil addressed the Chicago Society of Internal Medicine, January 27, on "Identity of Hemolytic and Myelolytic Toxins."——Dr. Benjamin Goldberg, medical director, Chicago Municipal Tuberculosis Sanitarium, will address the Boston Tuberculosis Association, February 3, on "Present Needs in Tuberculosis Control," and the Trudeau Society of Boston on "Medical Aspects of Phrenic Surgery."

Committee Finds Schireson Guilty of Fraud.—Following a trial of several weeks, at which about 1,800 pages of testimony and innumerable exhibits were presented, the medical committee of the state department of education and registration, January 23, found Henry Junius Schireson guilty of charges which the attorney general had made against him. In substance these charges were fraud, character unbecoming a physician, and gross malpractice. The present trial was the result of Schireson's responsibility in the case of Miss Sadye Holland, who suffered a double amputation following an operation for bow legs. The members of the medical committee, before whom Schireson was tried, were Drs. M. L. Harris, chairman, John R. Neal, Arthur H. Geiger, W. H. Gilmore and Gilbert Fitz Patrick, who unanimously recommended that Schireson's license be revoked. In sustaining the charges, the committee reported, among other things, that the defendant

"subsequently to his alleged graduation in 1906, succeeded in obtaining by one means or another, licenses to practice medicine in several states—some nine or ten. His licenses were revoked by several of the states on the grounds of false representations, fraud and deceit. It may be reasonably inferred that his purpose in obtaining licenses to practice in so many neighboring states was to enable him to practice in the several states by means of the unethical, advertising, quack institute which he organized, with headquarters in New Jersey. He admitted that he was the practical owner and manager of the said quack institute and that he had some 200 employees engaged in the work in the several branches; that he was arrested, indicted, convicted and served a term in prison in New York on account of maintaining a nuisance with his institute; that he was arrested, indicted, convicted and served a term in prison in Pittsburgh, Pa., in connection with a branch of this institute which he maintained in that city and that he was indicted and a warrant was out for his arrest in Utica, N. Y., when he fled the state."

(See editorial in THE JOURNAL, February 4, 1928, page 387.) Of the second charge concerning fraud in procuring a license, the committee reported:

"In the application filed by the defendant there were attached to it two affidavits certifying as to his good moral and professional character. One of these affidavits was obtained by deceit and Dr. Khamis, who signed it, said on his direct testimony that 'he had never known or seen the man when he signed it and that he was swindled in doing it.' The other affidavit was signed by Dr. Duplantis, who recently signed a statement after being shown a photograph of the defendant that he did not know him, but subsequently when on the witness stand said he had met the defendant when he [Duplantis] was a clerk in a drug store along about 1921 or 1922, and that he had forgotten it when he made the statement. In his application the defendant stated that he had had four years of medical education, giving dates, in a medical school recognized as in good standing by the department as required by the laws of Illinois. It was shown by the defendant's testimony that he had matriculated in one college which he was supposed to be attending during the day and in another in which he was supposed to be attending during the night while he held a third job during the day. In this way he said he got two years in one, which is something distinctly unrecognized by the law. This must certainly be construed as an attempt at deception."

The verdict of the medical committee has yet to be affirmed by the director of the Department of Registration and Education, to whom, under the law, the defendant has twenty days to present objections.

MASSACHUSETTS

Society News.—Two lectures will be delivered on "The Care of the Patient" at Harvard University Medical School, February 12 and 19, by Dr. James D. Heard, professor of medicine, University of Pittsburgh School of Medicine, and Dr. Daniel Fiske Jones, associate in surgery at Harvard. The Dr. George W. Gay Lecture on Medical Ethics will be delivered, February 26, by Dr. Samuel B. Woodward, Worcester.——Boston University has purchased the Sargent Camp at Peterboro, N. H., with the intention of making it a summer center for teacher training in physical education. In addition to the camp for girls which will be conducted through July and August, there will be a six week intensive program of college grade work for women teachers of physical education. The Sargent School of Physical Education, Cambridge, which was given to the university by the Sargents last spring, and the Sargent Camp will be under the direction of Arthur H. Wilde, Ph.D., dean of Boston University School of Education.

Bills Introduced.—S. 8 proposes (1) to require the consent of a patient before a physician may remove any organ of the body and, after removal of such organ, to require the physician to explain to the patient the necessity of such removal; (2) to extend to ten years the statute of limitations on actions of contract or tort against physicians for malpractice, negligence, error or mistake; (3) to require that a physician shall not handle a patient in such a way as to cause pain without first explaining that pain will result from such handling and obtaining permission therefor from the patient. S. 132 proposes to require annual registration of physicians with the board of registration in medicine and the payment of an annual fee of $2. S. 133 proposes to amend the law requiring that physicians register their licenses with the clerk of the town in which they practice by providing that each physician located in a town of 10,000 or more population shall notify the town clerk of any change in his business location following the original report of his address. H. 47 proposes to provide that all children shall be successfully vaccinated against smallpox before they reach the age of 1 year and shall be so vaccinated again in the seventh year, and that children under 7 who cannot give satisfactory evidence of having been successfully vaccinated may be barred from the schools of the state. This bill proposes further to authorize boards of health, if they deem it necessary, to require the vaccination of any or all of the inhabitants of their towns. H. 237 proposes to amend the law relating to chiropody by providing that the "profession" hereafter be designated as podiatry and the practitioners as podiatrists. H. 259 proposes to provide that a minor under 14 years of age who has not been vaccinated shall not be admitted to a public or private school except on presentation of the certificate of a registered physician that the physical condition of the minor is such that his health would be endangered by vaccination. H. 301 proposes to require applicants for a marriage license to furnish health certificates certifying that the applicants are normal mentally and physically and are free from communicable disease. H. 351 proposes to create a department of public medicine, for the purpose of furnishing a free and complete medical service to citizens of the state. The bill, among other things, provides that the department shall render free medical and surgical service of all kinds in all cases of sickness, accident and childbirth, including transportation to and from a hospital, maintenance in a hospital, and all drugs and artificial appliances and limbs required. H. 451 proposes to provide that hospitals supported in whole or in part by contributions from the commonwealth or from any town, and "other hospitals," shall furnish copies of the records of the treatment, care and medical history of persons for whose treatment or care an insurer is or may be liable. H. 452 proposes to penalize any one who inoculates any person with a virus or product that contains living germs of smallpox, or that is capable of causing smallpox. H. 567 proposes to provide that no person shall be required to submit to any form of vaccination or inoculation as a condition precedent to admission to any public school. H. 639 proposes to provide for the payment of fees to physicians appearing before the department of industrial accidents on behalf of injured employees. S. 184 proposes to amend the workmen's compensation act by extending in unusual cases the benefits of medical and hospital services for the lifetime of the injured employee. S. 229 proposes to amend the medical practice act by providing (1) that "the board of medicine shall be prohibited from inquiring into or interfering with the curriculum and management of any legally chartered medical school" and (2) that nothing in the act shall apply to any applicant for registration who at the time of the passage of this amendment is a student in a legally chartered medical school and that as to such applicants the provision of

the medical practice act in force prior to 1922 shall continue to apply. H. 824 proposes to provide that an unvaccinated child shall be admitted to a public school on presentation of a physician's certificate that vaccination would seriously endanger health or on presentation of an affidavit of the parent that he conscientiously objects to vaccination. H. 517 proposes to provide that a city or town may send indigent sick to any public or private hospital and not be obligated to pay more than $20 a week for such hospital aid.

MISSISSIPPI

Personal.—Dr. John W. Shackelford, Jr., has been appointed health officer of the county health unit at Greenville to succeed, it is reported, Dr. Howard P. Rankin, who is resigning to assume charge of the Howard County health department, Big Springs, Texas.

Bills Introduced.—S. 13 proposes to safeguard the distribution and sale of certain dangerous, caustic or corrosive acids, alkalis and other poisonous substances by requiring that they be labeled "Poison." S. 20 proposes that no marriage license shall be issued when it appears that the applicants, or either of them, is drunk, insane or an imbecile.

Society News.—The South Mississippi Medical Society was addressed at Laurel, Dec. 12, 1929, by Dr. Hugh L. McKinnon, Hattiesburg, on "Treatment of Sepsis Following Labor"; Dr. Henry P. Smith, New Augusta, "Treatment of Lobar Pneumonia"; Dr. Charley C. Hightower, Hattiesburg, "Diagnosis of Appendicitis, Acute and Chronic," and Dr. James H. Newcomb, Richton, "The Disappearing Small Town and Country Doctor."

NEW JERSEY

Bill Introduced.—S. 4 proposes to repeal the state law limiting the retail sale of distilled spirits and wine for medicinal purposes to bona fide prescriptions.

NEW YORK

Bills Introduced.—H. 244 proposes to provide that no statement concerning "patent medicines," devices and remedies may be broadcast by radio until approved by the commissioner of health, if the radio station is located within a city of the first class, or, if the radio station is located elsewhere, by the district state health officer of the district within which such radio station is located. S. 99 proposes to create a board of psychiatric examiners to determine the qualifications of psychiatrists to act in any criminal action or proceeding prosecuted by indictment.

Health at Schenectady.—Telegraphic reports to the U. S. Department of Commerce from sixty-three cities with a total population of 29 million, for the week ending January 18, indicate that the lowest mortality rate (7.8) was for Schenectady, and the mortality rate for the group of cities as a whole was 13.2. The mortality rate for Schenectady for the corresponding period last year was 24, and for the group of cities, 18.8. The lowest infant mortality was also for Schenectady, no deaths being reported. The annual rate for sixty-three cities is 13.4 for the three weeks of 1930, as against a rate of 19.5 for the corresponding weeks of 1929.

Society News.—The Brooklyn Society of Internal Medicine was addressed, January 24, by Drs. Israel Bram, Philadelphia, and Emil Goetsch on "Medical Treatment of Exophthalmic Goiter and Results Obtained" and "Surgical Aspects of Thyroid Diseases," respectively. The principal topic for discussion at the February 11 meeting of the society will be "Medical and Surgical Methods of Treating Gastric and Duodenal Ulcers."——The Medical Society of the County of Albany was addressed, January 29, by Dr. Robert H. Dinegar, Albany, on "Deep X-Ray Therapy in Malignancy and Kindred Diseases" and by Dr. Emanuel Martin Freund on "Otology in Children"; Dr. Harold A. Peck presented a film on "Development of Fertilized Rabbit Ovum."—— The South Brooklyn Medical Society was organized, January 16, with a membership of seventy-five physicians. Dr. Pasquale J. Imperato, Jr., was made president.

Dr. Nicoll Resigns as State Health Officer.—Dr. Matthias Nicoll, Jr., resigned as state health commissioner, effective January 16, to become health officer of the newly created Westchester County health district at a salary of $12,000, the same as that of the state commissioner. Dr. Nicoll has been in public health work since 1908, when he became chief of the division of diagnosis in the New York City Department of Health, where Dr. Hermann M. Biggs was chief medical officer. When Dr. Biggs became state health commissioner in 1914, he appointed Dr. Nicoll director of the division of public health education; in 1915 Dr. Nicoll was made secretary and in 1917, deputy commissioner, and on the death of Dr. Biggs in 1923 he succeeded him as commissioner. His first official act after taking the oath of office as health officer of Westchester is said to have been the appointment of Dr. Richard Slee, district state health officer, as his deputy at a salary of $7,000.

Health Demonstration May Leave Cattaraugus County.—It is reported that the Milbank Memorial Fund is preparing to withdraw or to decrease its work in connection with the health demonstration which has been in Cattaraugus County about seven years. The Olean *Herald*, a local paper, quotes the county health officer, Dr. Reginald M. Atwater, as saying that the "tapering off process" had been going on for some time and that a number of changes are expected to take place in February. The prospects are that the work of the Fund will continue through the present year. The Cattaraugus County supervisors allotted for health work in the county this year, $66,000, the same amount that has been appropriated by the board for the last three years. Prof. C.-E. A. Winslow, of Yale University School of Public Health, a member of the advisory council of the Milbank Fund, visited Olean recently; he is expected to return in April to make an investigation of the work of the Fund so as to be able to recommend when the organization will withdraw from active health work in that community.

New York City

Exhibition of Books on Foods and Cookery.—The New York Academy of Medicine announces an exhibition of some of the books on dietetics and cookery, including the famous ninth century manuscript of Apicius, donated to the academy by Dr. Margaret Barclay Wilson, professor of physiology and hygiene at Hunter College, who since 1919 has collected important textbooks in twenty different tongues on foods, cookery, gastronomy and allied subjects. This collection of about 4,000 volumes and a like number of pamphlets and clippings Dr. Wilson has now presented to the academy.

Society News.—The Society of Medical Jurisprudence was addressed, January 13, by Dr. S. Adolphus Knopf on "The Dilemma of the Family Physician Regarding Contraception and Sterilization for Race Betterment."——The Medical Association of the Greater City of New York was addressed, January 20, by Dr. Edward F. Hartung on "Endocrine Factors in Migraine"; Dr. John McDowell McKinney, Jr., disturbances of the pituitary, and Dr. George M. Goodwin, "Some Aspects of Thyroid Disease."——The five story dwelling at 10-14 East One Hundred and Third Street has been purchased by the New York Academy of Medicine.——There were only seventy-one cases of infantile paralysis and twenty-six deaths in 1929 as compared with 572 cases and 149 deaths in 1928, according to the city health commissioner; these figures are the lowest recorded in the department of health since 1919, when there were forty-two cases and fifteen deaths. In the epidemic of 1916 there were 1,429 deaths among males and 1,019 among females, and this ratio has held good in subsequent years.——Dr. George W. Kosmak delivered his inaugural address as president of the Medical Society of the County of New York, January 27, on "The Physician and the Changing Order."

OHIO

Society News.—Drs. Frank W. Harrah and Charles W. McGavran addressed the Muskingum County Academy of Medicine, January 8, on application of urology to general medicine and complications of diabetes mellitus, respectively.—— Dr. Barney J. Hein has been made president of the Academy of Medicine of Toledo and Lucas County for the ensuing year, it is reported, and Dr. Burt G. Chollett, president elect.

Twelve More Deaths a Day.—There were 3,726 more deaths in Ohio during the first ten months of 1929 than were recorded by the division of vital statistics in the corresponding period of 1928; this is an increase of twelve deaths daily. There were 1,790 more deaths reported from influenza than for the corresponding period of 1928. Decreases were recorded in the number of deaths reported from diphtheria, rabies, tuberculosis, cancer, diarrhea and enteritis under 2 years of age, nephritis and the puerperal state. For the first ten months of 1929, the death rate was 12.2 per thousand of population, as compared with a rate of 11.6 for 1928.

Personal.—A joint meeting of the medical societies of Miami and Shelby counties was held, January 10, to celebrate the ninetieth birthday of Dr. Adolphus B. Frame, Piqua. Dr. Frame, who has been in Piqua more than forty years, is still in the active practice of medicine. A discussion was held on methods of practicing medicine when Dr. Frame was young and the improvement which has taken place in the last quarter

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century. Several physicians were present, it is reported, who are more than 80 years of age and still in practice.——For the first time in years, the towns of East and West Rushville have a physician. Dr. Edward P. Sparks, Lancaster, is reported to have located there.——Dr. Courtland B. Meuser has been appointed city health officer of Ashland to succeed Dr. Eldred L. Clem. —— Frederick C. Waite, Ph.D., professor of histology and embryology, Western Reserve University, Cleveland, has been elected president of the Ohio Academy of Science.

New Birth and Death Certificates.—New forms of birth and death certificates were made effective in Ohio, January 1. The health department considers the change in the birth certificate the most important; for the first time, it includes the occupation of both parents under these headings:

Father—Work, profession, or particular kind of work done, as spinner, sawyer, bookkeeper, etc.
Industry or business in which work was done as silk mill, saw mill, bank, etc.
Date (month and year) last engaged in this work.
Total time (years) spent in this work.

Heretofore, the birth certificate called for a simple statement of the "occupation and industry" of father and mother. The change as to occupation affects the death certificates, with an additional clause in the medical certificates of death which asks for the principal cause of death and related causes of importance.

PENNSYLVANIA

Society News. — The Allegheny County Medical Society held a symposium on mental hygiene, January 21. Among the speakers were Dr. Cornelius C. Wholey on the meaning of the mental hygiene movement; Dr. Thomas G. Simonton, mental hygiene activities of the state medical society; Dr. Alexander H. Colwell, significance of mental hygiene in general medicine; Dr. George J. Wright, relationship of mental hygiene to neuropsychiatry; Dr. George W. Smeltz, mental hygiene and psychoanalysis; Dr. James S. Hammers, what the mental hygiene movement means to the psychopathic hospital, and Dr. Frank R. Bailey, how mental hygiene affects the work of the surgeon.

Philadelphia

Physician Sentenced.—Dr. Harvey M. Griggs was sentenced, January 14, it is reported, to a term of from five to ten years in the county prison. He pleaded guilty to seven indictments charging him with having performed illegal operations.

Society News.—The Physiological Society of Philadelphia was addressed, January 20, by Dr. Stanley P. Reimann on "Use of Thiocresol to Stimulate Cell Division."——Dr. Clarence A. Patten addressed the Philadelphia Neurological Society, January 24, on "Consideration of Neurologic Conditions of the New-Born," and Drs. Fred H. Leavitt and Nathaniel W. Winkelman, "Study of an Unusual Case of Schilder's Disease." ——Dr. John H. Cunningham, Jr., Boston, delivered the annual lecture of the Philadelphia Urological Society, January 27, on "Bladder Tumors (Impressions and Facts)."

Placement Bureau for the Handicapped.—The creation of a central city placement bureau for Philadelphia's handicapped citizens where they may be taught occupations suited to their abilities and later placed in positions was proposed at a meeting of the Council for Social Agencies, January 14. The plan was referred to the executive committee of the council for study and probable execution. The bureau would train the applicant for an occupation, find him employment, give social service aid to him and his family, and finally market his products after having supplied him the raw materials with which to work if he is not the type to be found in occupation outside his home or an institution.

Cancer Research Program at Pennsylvania.—Josiah H. Penniman, provost, University of Pennsylvania, announced, January 25, a gift of $210,000 by an anonymous donor to the Cancer Research Fund of the graduate school of medicine. It is the largest single contribution ever made to the fund, which was established in 1928 through a gift made by Irenee Du Pont. A joint research project has been undertaken with the Bartol Research Foundation of the Franklin Institute, and arrangements have been made for research in association with the American Oncologic Hospital, in which plans are being developed for the equipment of a new clinic for the modern diagnosis and treatment of tumors. Dr. George M. Dorrance has been appointed chief of staff of the clinic. Central laboratories of the Cancer Research Fund have been established at 133 South Thirty-Sixth Street where a tissue culture department is under the direction of Clarence E. McClung, Ph.D., professor of zoology and director of the zoological laboratory, University of Pennsylvania, and David H. Tennent, Ph.D., department of zoology, Bryn Mawr College. In addition to these laboratories, the fund had made grants for investigation to be carried on by research workers in collaboration with its work, including a study of the metabolism of cells by Wilder D. Bancroft, Ph.D., Cornell University; a study of the fixation of pathologic material by Henry J. Fry, Ph.D., of New York University; a study of the sensitization of cells to fluorescent substances and specific wavelengths of x-rays by Dr. Eric Ponder of New York University, and a study of the quantitative spectrographic estimation of minute quantities of substances in biologic material by Andrew Dingwall of Columbia University. In connection with the last named study the fund has established a fellowship under the name of the Dr. J. Packard Laird Fellowship for Cancer Research, which is now being held by R. J. Crosen of Columbia University; another fellowship is being established which will be known as the John C. Clark Fellowship in Cancer Research.

RHODE ISLAND

Bill Introduced.—H. 572 proposes to exempt chartered hospitals from any liability resulting from the acts of hospital officers, agents or employees.

Prize Essay for 1930.—The trustees of the Fiske Fund offer $200 for the best essay on "Lowered Basal Metabolism—Its Causes and Clinical Significance." A copy of the essay must be sent to the secretary before May, 1930, identified by a motto and accompanied by a sealed envelop having the same motto on the outside and the author's name and address within. Essays must be typewritten. The secretary of the fund is Dr. Wilfred Pickles, 184 Waterman Street, Providence, R. I.

SOUTH CAROLINA

Bills Introduced. — H. 944 proposes to permit merchants and shopkeepers to sell sulphur, saltpeter, borax, quinine, calomel, aspirin tablets, blue stone, and like drugs. S. 852 proposes to provide compensation for employees for disability or death resulting from injuries arising out of and in the course of employment, allowing the employer to select the physician to treat the injured employee.

VIRGINIA

Bills Introduced.—S. 20 and H. TN. 13 propose to provide for the examination and certification of barbers and to regulate the practice of barbering.

WASHINGTON

Society News.—The Walla Walla Valley Medical Society was addressed, recently, by Dr. Charles B. Ward, Spokane, on benign and malignant tumors of the lips, illustrated; Dr. Andrew A. Matthews, Spokane, methods of treating varicose veins, and Dr. Jesse W. Ingram, Walla Walla, personal observations in prostatectomy with end-results.——Dr. Emmet Rixford, professor of surgery, Stanford University School of Medicine, San Francisco, addressed the surgical section of the King County Medical Society, Dec. 9, 1929, on "Coccidioidal Granuloma," illustrated, and "Mechanics of the Production of Fractures." ——Dr. Vernon W. Spickard was elected president of the Seattle Pediatric Society, recently.——Dr. Moses E. Steinberg, Portland, gave an illustrated lecture on treatment of bone fractures, Dec. 10, 1929, before the Clark County Medical Society, Vancouver.

GENERAL

Credentials for the Pharmacopeial Convention. — The Board of Trustees of the United States Pharmacopeial Convention requests that the credentials of delegates to the convention be filed with the secretary, Dr. Lyman F. Kebler, 1322 Park Road, N.W., Washington, D. C., by March 14, 1930. The eleventh Decennial Convention for the Revision of the Pharmacopeia of the United States will meet in Washington, D. C., May 13 (THE JOURNAL, June 8, 1929, page 1978).

The President Forbids Importation of Parrots.—The importation of South American parrots was forbidden, January 24, by President Hoover, it is reported, as a preventive measure to check the further spread of psittacosis. The action was made after Surg. Gen. Hugh S. Cumming had recommended that an embargo be placed on the entry of all parrots until after the present epidemic of "parrot fever" had been curbed. Up to January 24, eight deaths had occurred from the disease and more than sixty cases had been discovered. In every instance the malady was traced to South American parrots which had recently been imported into this country.

Estimate of Amount of Venereal Disease.—In a recent report to Congress, Surgeon General Cumming, U. S. Public Health Service, estimated that there are under treatment or observation by physicians and in clinics in the United States about 474,000 cases of gonorrhea and 643,000 cases of syphilis. It was also estimated that 697,000 patients with gonorrhea and 423,000 patients with syphilis seek treatment for new infections in the course of a year. General Cumming stated that the control of venereal diseases was one of the most important public health problems in the country. For the fiscal year 1929, state health authorities reported a total of 195,559 cases of syphilis and 156,544 cases of gonorrhea. Clinics operated under state supervision reported 120,315 new patients and 2,128,417 treatments. The public health service is continuing its efforts to reduce the amount of venereal disease through cooperation with state and local health authorities by carrying on educational work and conducting research on problems relating to the treatment and control of syphilis and gonorrhea.

American College of Physicians.—The fourteenth annual clinical session of the American College of Physicians will be held at Minneapolis, February 10-14, under the presidency of Dr. John H. Musser, New Orleans. The morning sessions will be conducted, in part, in the laboratories and clinics of the local hospitals, where a large amount of material for demonstrations of clinics is being arranged. There will be demonstrations also by a group of chemists, biologists and nutritional experts at the Agricultural College of the University of Minnesota. The staff of the Glen Lake Sanatorium, which is the Hennepin County Sanatorium for Tuberculosis, a 700 bed institution, will provide a special series of clinics. In addition to addresses by well known physicians throughout the country, there will be a symposium on the biology of cancer Thursday afternoon, and a symposium on the rôle of surgery in pulmonary tuberculosis Friday afternoon. The general sessions will be held in the spacious Minneapolis Auditorium, where exhibits and expositions of medical appliances and other equipment will be shown. This hall will be remembered as the meeting place of the American Medical Association in 1928.

Medical Bills in Congress.—S. 1171, proposing to establish and operate a national institute of health, has been favorably reported to the Senate, with amendments (Report 102). S. J. Res. 40, proposing to authorize the President to extend invitations to foreign governments to be represented at the international congress for the blind, New York, 1931, has been favorably reported to the House (Report 289). S. 3167, introduced by Senator Jones, Washington, relating to the coordination of the public health activities of the government and to the personnel of the public health service, has been favorably reported to the Senate (Report 101). H. R. 3395, proposing to authorize the Commissioner of Prohibition to pay for information concerning violations of the narcotic laws of the United States, has passed the House, amended so as to make the seizure of contraband narcotics a condition precedent to the paying for such information. H. R. 7410, proposing to establish a hospital for the treatment of persons charged with or convicted of offenses against the United States, who are affected with an incurable or chronic degenerative disease, or who are so defective mentally or physically as to require special treatment, has been passed by the House.

Society News.—The first International Congress on Mental Hygiene will be held in Washington, D. C., May 5-10, with headquarters at the Hotel Willard. The committee on organization is requesting the cooperation of all governments, voluntary organizations and individuals interested in better mental health. —— Thomas H. Morgan, Ph.D., director of the Kerckhoff Laboratories of the Biological Sciences, California Institute of Technology, Pasadena, Calif., has been elected president of the American Association for the Advancement of Science.——The sixth annual meeting of the American Heart Association will be held at the New York Academy of Medicine, Fifth Avenue and One Hundred and Third Street, February 3.——The sixteenth annual conference of the National Association for the Prevention of Tuberculosis will be held, July 3-5, at the British Medical Association House, Tavistock Square, London, W. C. 1. ——The Pacific Northwest Medical Association will meet in Butte, Mont., July 1-3. Among the speakers will be Drs. Edwin I. Bartlett, San Francisco; Hilding Berglund, Minneapolis; George B. Eusterman, Mayo Clinic, Rochester, Minn.; Emile Holman, San Francisco; Allen K. Krause, Tucson, Ariz.; Andrew S. Lobingier, Los Angeles, and Thomas M. Rivers, New York, and Chauncey D. Leake, Ph.D., San Francisco. ——May Day is National Child Health Day; the slogan is "Every Parent and Every Community United for Health for Every Child." The keynote in the program for 1930 is parent cooperation in community child health and protection.——The *Hebrew Physician (Harofeh Hoibri)*, the only Hebrew medical journal published outside of Palestine, has made its appearance, under the editorship of Dr. Moses Einhorn and Dr. Leon M. Herbert. Physicians interested in this journal are requested to write to this journal at 983 Park Avenue, New York.

Government Services

Moving Picture of Army Medical Service

A film has been prepared by the Medical Field Service School, U. S. Army, Carlisle Barracks, Pa., revised by the army pictorial service of the signal corps, and approved by the secretary of war, which is said to have a wide field of usefulness for instruction on the tactics and technic of medical service with infantry in combat. Officers who give lectures to groups of reserve officers and R. O. T. C. units may avail themselves of the opportunity this picture affords.

U. S. Public Health Service

Passed Asst. Surg. Carl E. Rice has been relieved from duty at the marine hospital, Baltimore, and assigned to duty at Ellis Island, N. Y.——Passed Asst. Surg. Albert E. Russell has been relieved from duty at Niagara Falls and assigned to duty at Washington, D. C., in the office of industrial hygiene and sanitation.——Surg. Charles Armstrong has been directed to proceed from Washington, D. C., to Annapolis, Md., and vicinity, to investigate a case reported as psittacosis.——Asst. Surg. Harold D. Lyman has been relieved from duty at the marine hospital, Port Townsend, Washington, and assigned to duty at the marine hospital, San Francisco.—— Dr. Ralph Gregg has been appointed and commissioned as assistant surgeon in the regular corps of the U. S. Public Health Service to rank as such from date of oath.——Dr. Felix R. Brunot has been promoted and commissioned as passed assistant surgeon in the regular corps of the public health service to rank as such from January 27.——Surg. Louis L. Williams, Jr., has been directed to proceed to the station at Richmond, Va., on his arrival in New York.—— Surg. Roy P. Sandidge has been assigned to duty at Ellis Island, N. Y.

Change of Station in the Navy

Comdr. Jacob Stepp has been transferred to the navy recruiting station, Providence, R. I.; Lieut. Comdr. Philip S. Sullivan has been transferred to the navy hospital, New York; Comdr. Joseph R. Phelps will be transferred from the naval station at Tutuila, Samoa, to the navy hospital, Mare Island, Calif., effective April 30; Lieut. Everett H. Dickinson will go to the navy ammunition depot, Fort Mifflin, Philadelphia, about March 1; Lieut. Edward P. Kunkel will be transferred to the naval station at Guam, about March 4; Lieut. Melville D. Dickinson, Jr., has been transferred to the U. S. S. *Aroostook;* Lieut. Comdr. Carl A. Broaddus will go to the Asiatic Station, about March 1; Lieut. James L. Manion has been assigned to the navy training station, San Diego, Calif., and Lieut. Jose A. Perez to the navy medical school, Washington, D. C.; Lieut. Comdr. William W. Davies, Jr., has been assigned to duty involving flying, air squadrons, scouting fleet; Lieut. Greydon G. Boyd's resignation has been accepted, effective February 20; Capt. Edward U. Reed was transferred from the U. S. S. *Relief*, about February 1, to the naval dispensary, San Pedro, Calif.; Lieut. John N. C. Gordon has been transferred to the navy hospital, Norfolk, Va.; Comdr. Chester M. George has been transferred from the U. S. S. *California* to the navy yard, Mare Island, Calif.

Civil Service Examinations

The U. S. Civil Service Commission announces the following open competitive examinations: medical officer, associate medical officer and assistant medical officer. Applications for these positions will be rated as received by the commission at Washington, D. C., until June 30. The examinations are to fill vacancies in hospitals of the veterans' bureau, the public health service, the Indian service, and other establishments of the federal classified service throughout the United States. Competitors will not be required to report for examination at any one place, but will be rated on their education, training and experience. Information may be obtained from the U. S. Civil Service Commission at Washington, D. C., or the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 4, 1930.

Cancer Research

There are now two great organizations in this country devoted to the promotion and coordination of cancer research. Attention has recently been called to the work of the British Empire cancer campaign. But there is an older body, the Imperial Cancer Research Fund, which has just published its twenty-seventh annual report. Under the direction of the Royal Colleges of Physicians and Surgeons and the supervision of Dr. J. A. Murray, its group of research workers have followed their own line of investigation into the behavior of the cancer cell, its vital and chemical properties. For many years they have done work in inducing tumors in the lower animals, principally mice. The laboratory has accumulated a variety of strains of pure transplantable malignant mouse tumors probably greater than any other in the world, and it has been able to supply other workers with material. Promising as is the action of radium on many kinds of malignant growth, little is known of how the result is brought about. During the year a study has been inaugurated by Mr. Crabtree into the metabolism of the irradiated cell.

CANCER CELLS AND OXYGEN

Another valuable piece of work has been confirmation of the discovery of Prof. Otto Warburg that cancer cells can split sugar into lactic acid to a far greater extent than normal cells. As oxygen does not enter into this reaction, cancer cells can derive energy in its absence and are therefore less dependent than normal cells on it. Warburg's experiments were largely on human growths that contained a large admixture of normal cells. A study of the pure experimentally produced cancerous growths provided a valuable confirmation of the existence of this important biochemical property of malignant growths, which had been unsuspected.

ARTIFICIAL PRODUCTION OF CANCER

Dr. William Cramer surveys ten years' systematic investigation of the artificial production of cancer. This was opened by the experiments of Fibiger in 1914, which showed that certain parasites in the stomach of rats frequently produced cancer. Two years later it was found in Japan that cancer could be produced by prolonged irritation with tar painted on the ear of a rabbit. In 1921 this method was standardized in Copenhagen and in the Imperial Cancer Research Laboratory by Drs. Murray and Woglom. Some interesting facts came to light. Cancer could not be produced under three or four months. Decrease in the amount of irritation prolonged the period before cancer appeared, but an increase did not shorten it. Three months in the life of the mouse is equivalent to seven years in the life of man, and this was the minimum period. As a rule, six months was found necessary for the production of a mouse tumor, corresponding to fourteen years of human life. It is therefore of great interest that this is the period observed for the production of human cancer of occupational origin among chimney sweeps, tar workers and oil workers. But not all workers, only susceptible ones, are affected. Irritants of widely different character, including intense heat and cold, were found equally effective in producing cancer, after prolonged application. Thus it was the prolonged irritation rather than the particular irritant that seemed to matter. Dr. Cramer therefore concludes that freedom from cancer is more likely to be attained by studying the problem of susceptibility than by hunting down the various forms of chronic irritation. Work is already being done on this. It has been found that by administration of certain substances the susceptibility of an organism can be increased, which indicates the possibility that it can also be lessened.

Prehistoric Man in South Africa

The abbé Breuil, professor of prehistoric ethnography at the Collège de France and director of exploration at the Institute of Prehistory, has completed an extensive tour of the Orange Free State, during which he investigated the Vaal River area and the Riet River Valley. The expedition included Mr. and Mrs. Harper Kelly of Cincinnati. Rock engravings, including representations of prehistoric animals, at least ten different periods of rock paintings and a prehistoric mine for material for stone implements were among the most important finds. The abbé has formed a number of important conclusions: (*a*) The stone age in South Africa appears to go back as far as the stone age in Europe. (*b*) Neither South Africa nor Europe is to be looked on as the cradle of man, which will probably be located in central Africa on the southern borders of the Sahara. (*c*) The Orange Free State provides one of the richest, if not the richest, archeological fields in the world. Traces of one of the oldest recognizable cultures known as the "Upper Stellenbosch" were investigated near Christiana. There were found stone implements used in making rock engravings, extinct mammoths, extinct Cape horses and extinct buffalo.

Child and Maternity Welfare

Addressing the ninth winter school of health visitors and school nurses, Mr. Arthur Greenwood, minister of health, said that the care of the child should begin before it was born. The community had recognized this by providing prenatal clinics. One of the ways to deal with the difficulty of maternal mortality was through increased care of the expectant mother. He deplored the enormous gap in our public health system between infancy and the age at which the child entered school. Hence when children came under the school medical service, more than a fourth were found to be suffering from defects. Dr. A. Remington Hobbs said that much could be done by educating young women for healthy motherhood before marriage. By learning how to keep their bodies strong and clean and by proper diet, they could do an enormous amount to prepare themselves for safe and healthy motherhood.

Health of the School Child

In his annual report for 1928, just published, Sir George Newman, chief medical officer of the board of education, states that the foundation of the medical care and supervision of school children is systematic inspection. The purpose is not only to detect the children who are sick or defective but also to obtain a physical survey of every child. Routine medical inspection takes place three times—at entrance, at the age of 8 years and on leaving school. An approved schedule of points of examination is followed, the school nurse and the teacher are present, and the parent is invited. In addition to routine examination, many children are referred for medical examination by the parents, teachers or nurses. The school medical service has materially affected the wider movement of national health, and the child has become the starting point of the new preventive medicine. During 1928, nearly two million children, 38.4 per cent of those in average attendance in the elementary schools, were examined, and the number of inspections as regards cleanliness by the school nurses exceeded the enormous figure of 14 million. Excluding dental disease, the percentage of children found suffering from definite defects was 20.7. Defects of vision (10 per cent) head the list, followed closely by nose and throat defects (7.9 per cent). With one exception, every local authority has made provision for eye treatment. The number of local authorities that provided treatment by artificial light was sixty-four, an increase of twenty over the previous year. The general opinion of school medical officers is that ultraviolet radiation is of most value in conditions of sub-

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In the female that has entered on the menopause, implantation of the antehypophysis reawakens ovarian activity and restores to the genital tract the structure and the functional capacity that it presented during the offspring-bearing stage. In the ovariectomized female, implantation of antehypophyseal tissue does not effect any modification.

From the pharmacodynamic point of view, it may be said that the chemistry of antehypophyseal extracts is still in the beginning stages and the use of extracts gives inconstant results. It may be affirmed, in the present state of our knowledge, that the presence of the hypophysis is indispensable in order to assure, first, the onset of puberty, and, secondly, the anatomic and functional integrity of the ovary.

The clinical part of the paper was presented by J. L. Wodon of Brussels, who brought out that functional modifications of the female genital organs entail hypophyseal modifications. Gravidity entails an increase in the volume and the weight of the pituitary gland. Ovariectomy applied to young women brings about morphologic changes similar to those observed in hypophyseal insufficiency. Clinical observation and experimentation indicate a disorder that is not constant but is frequent at the site of the hypophysis. The therapeutic applications of extracts of the anterior lobe in cases of hypopituitarism, or in cases of adenoma of the pituitary gland, have not produced appreciable effects. Posthypophyseal extract, administered by the intramuscular route, has an oxytocic action during the three minutes that succeed the administration, and affects in therapeutic doses the intermittent character of the uterine contraction.

What is the posology of the hypophyseal extracts? Various investigations have revealed enormous differences in the biologic potency of commercial products. The conference of Geneva has established regulations concerning the preparation and the dosage of posthypophyseal extracts to the effect that 1 cc. of extract shall contain 10 international units. The ordinary ecbolic dose during the expulsion of the child is 5 international units, renewable only after an interval of from thirty to forty minutes.

MYOMECTOMY AND PREGNANCY

The second topic on the program was "Myomectomy in the Absence and in the Presence of Pregnancy." The first part of the topic, "Myomectomy in the Absence of Pregnancy," was presented by E. Meriel and Baillat. The conservative trends of present-day surgery explain the interest that attaches at present to the enucleation of one or more fibromas with conservation of the uterus. Myomectomy may be indicated for physiologic, social or anatomic reasons. Its purpose is to preserve the function of the uterus in women who are still young. The choice of cases is naturally dominated by anatomic factors. It would be presumptuous before operating to assure any one that it would not be necessary to resort to hysterectomy. While recurrences are more frequent in young women, they are observed in only 8.47 per cent.

The second part of the topic, "Myomectomy During Pregnancy," was presented by A. Brindeau. In a total of 18,000 confinements, the author reported thirty-one surgical interventions for fibromas. The frequency of myomas as a complication of pregnancy is, therefore, rather high. Myomectomy performed during pregnancy encounters fibromas somewhat transformed by the new physiologic state of the woman. Hypertrophy of the tumor is frequent, especially during the first months.

One should not do a hysterectomy in these cases unless it is impossible to bring matters to a fitting close in any other way. It is advisable not to perform myomectomy on other than fibromas located at some distance from the uterine cavity. The septum that separates the wall of the ovum from the outer layer of the myoma is, moreover, thicker than one thinks. Further, only the principal tumors should be extirpated, the smaller ones being left to themselves.

INDICATIONS AND TECHNIC OF STERILIZATION OF WOMEN

The third topic on the program was "Indications and Technic of Sterilization of Women." The first part of the topic, the indications, was presented by Muret of Lausanne. The general indication is a congenital or acquired pathologic state which may gravely endanger health or life when the patient becomes pregnant. The indications are much more rare than the indications for therapeutic abortion, by reason of the definitive nature of the results. Sterilization is less grave in itself than therapeutic abortion, but it is of greater significance from a social point of view, although it must be admitted that the present diminution of births is due chiefly to birth control and to criminal abortion. A narrow pelvis is no longer an indication for preventive sterilization now that the mortality from cesarean operations has been reduced to from 1.5 to 2 per cent.

The medical indications are as follows: In a case of tuberculosis, sterilization is performed either to suppress gestation definitively or to eliminate the ovarian function and thus modify the metabolism. With regard to heart disease, the indications for sterilization appear to coincide with those of therapeutic abortion: disorders of compensation before or during the first months of gestation. Sterilization may be indicated in the form of an independent intervention or in connection with a cesarean operation. In mental and nervous diseases the indications for therapeutic abortion and for sterilization are much discussed because of the difficulties in the prognosis of mental diseases and the variable influence that gestation and the interventions in question exert on their course.

A third variety of indications comprises those of a eugenic and social nature, when the purpose is to prevent the birth of defective children doomed to be burdens on society. The question is whether the sciences of heredity and eugenics make it possible to foretell the future of descendants with a sufficient degree of accuracy to justify the suppression of the procreative function in given cases.

Legally, it may be admitted that sterilization performed for frankly medical indications, with a curative purpose in view, is, like any other operation, controlled solely by science and the conscience of the physician. When the question is eugenic or social the decision is much more delicate. It is evident that sterilization presupposes as an absolute condition the consent of the person concerned or of a responsible authority acting as her guardian.

"The Technic of Sterilization of Women" was presented by A. Laffont of Algiers. Methods of performing sterilization fall into three main groups. The first group comprises the biologic methods, which bring the problem of sterilization into the field of hormones. The second group comprises such physical methods as the roentgen ray and radium, and the third group includes surgical methods.

The author discussed experiments on sterilization by means of a standard vaccine composed of spermatozoa, with a view to bringing about an active immunity to conception; also experiments with a spermotoxic serum for provoking a passive immunity. He considered the action exerted by insulin, which effects a manifest prolongation of the periods of genital repose by an inhibition of ovulation in some experimental animals. In woman it diminishes the menstrual flow and the duration of the menstrual period, and Vogt has found that the activity of the medicament follows a curve parallel to that of ovarian activity.

The study of the relations between the anterior lobe of the hypophysis and the female genital tract gives rise to divergent deductions.

Under physical procedures, the author considered chiefly the action of roentgen rays.

The surgical procedures instituted to prevent conception, those applied to the vagina, the uterus, the ovaries and the tubes, were reviewed by the author.

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ITALY

(From Our Regular Correspondent)

Dec. 15, 1929.

The Antituberculosis Congress

The third National Antituberculosis Congress was held recently in Palermo under the chairmanship of Prof. Luigi Manfredi. The first topic on the program, "The Crusade Against Tuberculosis," was divided into two parts. Professor Giannini of Rome, who presented the official paper on the first part, discussed the antituberculosis societies on which devolves, according to law, the rendering of aid to that group of the population that comes under the operation of compulsory insurance. A full and complete functioning of the societies would require an annual expenditure far in excess of the potentiality of any budget, and certainly in excess of the resources of the individual citizens, each of whom makes an annual contribution of 23.65 lire for the first forty years and of 21.25 lire after that. Professor Giannini said that the work of the tuberculosis societies should be confined, at least at first while the funds are so limited, to the creation and upkeep of a chain of antituberculosis dispensaries, which at the present time is far from adequate. All the rendering of aid would be entrusted to the insurance organization.

Professor Sagona of Palermo, who presented the second part of the topic, pointed out that the duties of the Cassa nazionale per le assicurazioni sociali are plainly limited to the treatment of the insured and their families. The available funds of the *cassa* amount to about 300,000,000 lire, or $15,750,000, and the total number of persons that may eventually claim aid is equal to about half the population. To the provincial antituberculosis societies belong, on the other hand, matters pertaining to prophylaxis, ferreting out of cases, and publicity work, with respect to the whole population, including the provision of sanatorium accommodations for the noninsured portion of the population. Their available funds amount to only about 30,000,000 lire annually, or $1,575,000. It would not be out of place if the *cassa* came to the aid of the provincial societies. It might assume, for instance, a definite proportion of the cost of establishing provincial antituberculosis institutes or dispensaries, together with a certain part of the expenditures entailed by their upkeep.

SEWAGE TREATMENT PLANTS FOR SANATORIUMS

Professor Omodei and Engineer Raffo of Rome presented papers on sewage treatment plants for sanatoriums. To eliminate the danger of the contamination of waters and soils by tuberculous persons residing in hospitals and sanatoriums through the careless disposition of sewage and waste matter, it is necessary to resort to their chemical disinfection. But disinfection in itself is not sufficient; it is necessary to conduct the sewage first into sedimentation reservoirs to remove the coarser material and reduce the organic substances. The best and the most economical reagent is chlorine applied in gaseous form, the same system being employed that is in use for the treatment of drinking water. However, for polluted waters the quantity of chlorine necessary is considerably more than for drinking water, the amount needed ranging from 10 to 20 Gm. per cubic meter of water. Owing to the great difficulty of destroying the tubercle bacilli in polluted waters, it is necessary to sterilize the sputum and feces of tuberculous persons before they are transferred to the sewer.

PERCENTAGE OF PERSONS WITH LATENT TUBERCULOSIS

Professors Busi of Rome and Paolucci of Parma offered a communication in which they gave the results of their inquiry as to the percentage of persons with latent tuberculosis. For their study of the subject the speakers selected the region of Lanciano. They examined about 300 children ranging from 6 to 9 years of age, belonging to the primary classes of the urban and suburban schools. An accurate personal history of each child was secured, and, if necessary, the parents were examined. Likewise, information on the living conditions from the standpoint of hygiene, the location and the exposure of the home, and similar data, was obtained. A physical examination, the skin test (and sometimes the intradermoreaction of Mantoux), and the radiologic examination were carried out. Of the children examined, 135 males and 110 females showed no signs of tuberculosis. The other forty-seven children could be divided into three classes: (1) children living then or recently with tuberculous persons in the family: twenty-five, thirteen of whom presented a positive skin test; (2) children in whom the skin test was positive, although no exposure in the family could be established: twenty-two, and (3) only in three children was it possible by auscultation to find manifest signs of pulmonary lesions. The radiologic examination revealed in 4 per cent of the cases lesions that were clinically unsuspected, and it confirmed in 50 per cent of the cases the presence of a suspected tuberculous infection; in children who were constantly exposed in the family but who gave negative biologic and objective tests, it revealed definite lesions in 25 per cent of the cases.

These researches constitute the first of a series of inquiries on pulmonary tuberculosis in children, which the authors plan to carry out.

RECOVERY FROM PULMONARY TUBERCULOSIS

The first part of the fourth topic, "Forms of Recovery from Pulmonary Tuberculosis," was presented by Professor Soli of Palermo, who distinguished four forms: (1) complete recovery, with restitutio ad integrum, which may occur not only in the tubercle type but also in the endo-alveolar exudative processes; (2) incomplete recovery, characterized by the absorption of tuberculous products, but with formation of a scar in place of restitutio ad integrum; (3) a partial recovery, with persistence of tuberculous products more or less calcified and surrounded by a fibrous connective tissue; (4) an attempted recovery, represented by cavities, which may result in encapsulation and retraction, or complete cicatrization.

The second part of the fourth topic was considered by Professor Costantini of Bologna. Speaking of the forms and the mechanism of recovery, the speaker recalled that the pleuropulmonary apparatus defends itself against tuberculous infection only at the cost of more or less deep cicatricial lesions. The process of resolution is possible only in the exudative types. The productive types, characterized by the presence of abundant connective tissue, are certain to develop fibrosis. The radiologic examination is a valuable aid in the diagnosis of recovery but only on condition that the results are compared with the clinical observations. The same may be said of the numerous laboratory tests. The disappearance of the tubercle bacillus from the sputum is a valuable factor—necessary but not sufficient; likewise the disappearance of the alveolar cells and of the elastic fibers; the skin tests must be entirely negative. The complement fixation test has great value, and on complete recovery the antigen and the antibodies must have disappeared from the blood. The morphologic examination of the blood contributes a certain amount of evidence with regard to recovery; there is an increase of red corpuscles and of hemoglobin, and a shifting of Arneth's formula toward the left.

Meeting of Society of Medicine and Colonial Hygiene

The Società italiana di medicina e igiene coloniale met in Rome under the chairmanship of Senator Umberto Gabbi, medical clinician of Parma, and of Prof. Aldo Castellani, senator. The sessions were attended by delegates from various nations of Europe; among others, those of England, Belgium, Germany and Greece, together with a large number of military and civil physicians from the Italian colonies.

SPRUE

At the first scientific assembly, Professors Castellani and Gabbi presented a paper on sprue. This grave disease attacks

many Europeans residing in the tropics, especially those from Asia and America, while the natives remain for the most part immune; it is not very prevalent in Africa; sporadic cases have been diagnosed in temperate climates—also in Italy. The etiology is still obscure. It is of great advantage to the patients to remove them from the zones where they contracted the disease. A milk and fruit diet is indicated; fresh strawberries, particularly, have been found beneficial. Professor Castellani called attention to the types of pseudosprue; among others, the syphilitic, the amebic and the metadysenteric types.

Professor Castronuovo of Naples, Pullé of Bologna, Patané of Milan, and others took part in the general discussion that followed.

Several communications were presented on leishmaniosis, with especial reference to the foci of the disease in southern Italy and the islands and to the principal disorders associated with it; namely, bilharziasis and amebiasis. Observers agree on the harmlessness and the advantages of puncture of the spleen for the purpose of diagnosis. In discussing the therapy of leishmaniosis, it was emphasized that of the preparations of antimony tartrate, the sodium salts are preferable to the potassium salts.

Almost the whole second day was devoted to a discussion of leprosy. The speakers were Professor Stanziale of Naples and Captain Ronga, of the army medical corps, who spoke of the nature of human and rat leprosy, of the agents of transmission, and of the possibility of hereditary transmission. As regards the present diffusion of leprosy, it was brought out that, with the exception of Germany, where none exists, the disease is on the increase in practically all countries. In Italy there are about 400 cases, which does not include the colonies. In South America there are 20,000 cases. Professors Schilling of Germany, Copenaris of Athens, Alvarado of Argentina, Gabbi and others took part in the general discussion. Professor Castellani discussed the subject of metadysentery. Professor Schilling spoke of the present state of chemotherapy as applied to tropical diseases. Professor Copenaris of Athens gave an account of the dengue epidemic in Greece. The last day of the session was devoted to the prophylaxis of malaria.

BERLIN

(From Our Regular Correspondent)

Dec. 28, 1929.

The Marriage Rate

Regierungsrat Wagner, member of the federal bureau of statistics in Berlin, publishes in the *Deutsche medizinische Wochenschrift* an article on the relation of marriage statistics to the general social conditions. One of the interesting facts derived from the demographic statistics of the postwar period is that the percentage of celibacy, as compared with former years, has been much reduced. A number of considerations would lead one to expect a decrease in the marriage rate: the shock suffered by our economic and social life as a result of war, the housing situation, the difficulties involved in establishing a home, the wiping out of savings accounts, and the more marked assertion of individualism.

The number of marriages immediately after the war attained a phenomenally high rate but declined again just as rapidly. The number for several years was as follows:

1913:	463,000,	or	7.8	per thousand of population
1924:	440,000,	or	7.1	per thousand of population
1925:	483,000,	or	7.7	per thousand of population
1926:	483,000,	or	7.7	per thousand of population
1927:	538,000,	or	8.5	per thousand of population
1928:	587,000,	or	9.2	per thousand of population

There were therefore about 12,500 more marriages in 1928 than in 1913 in the same federal area. The marriage rate today is much higher than before the war because there are more marriageable men. On account of the changes in the ratio of various age groups (more adults, fewer children) and the simultaneous decrease in mortality, the adult age groups are more strongly represented than before the war. In the very nature of the case, this is almost certain to cause a corresponding increase in the number of marriages.

The actual increase in the number of marriages cannot be explained entirely, however, on that basis. Between 1910 and 1925, the number of married men showed an increase of 2,300,000, whereas only 1,850,000 can be explained as due to changes in the ratio of the various age groups. The difference, amounting to about 460,000, must be ascribed to the greater marriage frequency, which indicates also, to some extent, an increased eagerness or willingness to marry. This results from the fact that many men, for extrinsic reasons, are able to marry earlier than they could before the war. For instance, the abolition of universal military service enables men under 22 years of age to marry earlier than formerly. The "old bachelors" who have passed the age of 40 are manifesting a much greater desire to marry than they did before the war.

According to the census of 1925, more men of the 22 to 40 age groups were marrying than was to be expected, judging by prewar standards. It has been noted, too, that men with independent businesses marry later and employees in dependent positions marry earlier than they did before the war.

Wagner discussed then a question that Professor Schwalbe, the publisher of the *Deutsche medizinische Wochenschrift*, put to him, namely: as to whether a greater tendency to marry is observed in the upper strata of society, in spite of the present strong individualistic trend, or in the lower strata, which are less affected by modern views. If the answer to this question were known, one might be able to weigh the influence of economic conditions on the increase in the number of marriages.

Analyzing the results obtained by Wagner, one can doubtless answer the question by saying that a greater tendency to marry is observed in the middle and lower social groups, although it is impossible to differentiate as yet between the various economic divisions—between the civil servants so called, the employees and the workingmen.

How is the influence of economic conditions on the number of marriages to be explained? In the long run, increases in the number of marriages are independent of social conditions. With the present composition of the various age groups, one can estimate with some certainty that the maximal annual number of marriages will be reached between 1929 and 1931, and that the total will probably be about 600,000. This high status will be maintained until 1935, after which the number will decline rapidly. The general influence of economic conditions on marriage can best be expressed negatively to the effect that a person who has no inclination to marry will not be induced to marry by an improvement in his economic status.

On the other hand, the exact time of a marriage is influenced in many ways by economic conditions. For instance, over short periods (three months, or even single years) the influence of the turns of the stock market on the number of marriages can be demonstrated.

Aside from such fluctuations, special economic conditions prevailing in some callings or professions furnish the basis for certain marriage habits. The professional man marries later than the laborer because he is older when he is in a position to establish a home. What decides the matter of marriage is not so much whether the economic condition of the individual is "good" or "bad" but whether or not it has reached the status of equilibrium, or the goal toward which one is striving. Of course, conditions affecting marriage vary in the different social strata. In trades in which there are opportunities to rise and a prospect of establishing an independent business, marriage is postponed longer than in trades in which that is not the case. Among bakers, butchers, tailors and shoemakers, only from 28 to 40 per cent of the journeymen of the 25-30 age group are married, whereas about 60 per cent of the other skilled work-

men of the same age group are married. For unskilled laborers and "helpers" the percentages are still higher. As compared with the prewar period, opportunities to become independent, or to establish one's own business, have not been so good of late years, and this, no doubt, is one of the causes contributing to the general increase in the number of marriages. As compared with 1907, the number of persons with fixed pursuits has increased 27 per cent, while the number of persons engaged in an independent business has increased only 7 per cent. On the other hand, the ranks of the general employees have been widely extended. The general lowering of the age of marriage among the dependent strata of the population and the simultaneous raising of the age of marriage among the independent class have thus the same economic basis: when it becomes more difficult to establish one's own business, marriage is made more difficult for those who strive to attain that goal, whereas the others content themselves with the securing of a permanent income in a dependent position and then marry earlier than they would have done had they waited to establish an independent business.

Just what circumstances have stimulated marriage cannot be established exactly. Yet it is evident that present-day conditions cannot have had such a deterring influence on marriage as has been assumed. The young couple pursues nowadays a gainful occupation at least during the period of engagement and often during the first few years of marriage. Even bad housing conditions do not prevent marriage. More than half of the families occupying subrented rooms are living temporarily with their parents or other relatives. No one appears to think it strange if a young couple is unable at first to furnish the home completely. The technic of preventing, under such circumstances, during the first years of marriage, the arrival of undesired offspring has been acquired, in recent years, by a large part of the population. It is possible, too, that a less serious view has, in the end, facilitated marriage.

In Germany there is a great excess of women over men, which is particularly evident in the 30 to 40 age group. This has made the women less particular with reference to the man of their choice, and, at the same time, has caused them to seek more diligently for a husband. It is noticeable that women of middle age more frequently marry men considerably younger or perceptibly older than themselves, than they did before the war. On the other hand, the men have a wider choice than formerly, and, owing to the fact that women are today more often engaged in gainful pursuits than before the war, men have more opportunities to select a comrade of the shop, factory, office or counting room as a companion in marriage. There is also the increasing attrition of class distinctions, a process brought about partly by changed political conditions. For example, if an official of social standing, who lost his property as the result of war conditions, sees his daughter working as a stenographer, he gradually ceases to regard the marriage of a younger colleague to a stenographer as a union "beneath his station."

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Marriages

EUGENE MARVIN MCDANIEL, Fayetteville, N. C., to Miss Edna May Owen of Richmond, Va., Dec. 26, 1929.

FRANK ELLSWORTH TAPPAN to Miss Alice B. Ward, both of Berryville, Va., Dec. 6, 1929.

ARCH AVARY, JR., Boston, to Miss Isabel Footman Wilson at Decatur, Ga., Dec. 28, 1929.

EARLE E. KIDDER to Miss Mabel A. Anderson, both of Hibbing, Minn., Dec. 20, 1929.

ALEXANDER STERLING to Miss Bertha M. Lessy, both of Philadelphia, Dec. 18, 1929.

HARRY HUDSON to Mrs. Bertha Rearick, both of Philadelphia, Dec. 12, 1929.

Deaths

Lawrence Litchfield ✠ Pittsburgh; Bellevue Hospital Medical College, New York, 1888; chairman of the Section on Pharmacology and Therapeutics, 1910-1911, third vice president and chairman of the Section on Practice of Medicine, 1917-1918, of the American Medical Association; past president of the Medical Society of the State of Pennsylvania and the Pittsburgh Academy of Medicine; member of the Association of American Physicians, the American College of Physicians and the American Climatological and Clinical Association; member of the executive committee of the International Congress on Tuberculosis and the International Union Against Tuberculosis in 1908, and the International Congress on Hygiene and Demography in 1910; served during the World War; visiting physician to the Western Pennsylvania Hospital, the Pittsburgh Hospital and the Pittsburgh Hospital for Children; medical consultant to the Pittsburgh Eye and Ear Hospital, St. John's Hospital and St. Joseph's Hospital; aged 68; died, January 15.

George Rinaldo Southwick, Boston; Boston University School of Medicine, 1881; Harvard University Medical School, Boston, 1898; member of the American College of Surgeons; professor of gynecology and at one time lecturer and assistant professor of obstetrics, Boston University School of Medicine; author of "Practical Gynecology"; on the staffs of the Westboro (Mass.) State Hospital and the Massachusetts Homeopathic Hospital, where he died, January 7, aged 70, of chronic myocarditis.

Cyril Barnert ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1904; member of the American College of Surgeons; served during the World War; consulting ophthalmologist to the Barnert Memorial Hospital, Paterson, N. J., and the Beth Israel Hospital, Passaic, N. J.; associate ophthalmologist to the Lebanon Hospital and the Mount Sinai Hospital, New York, where he died, January 8, aged 46.

William Elmore Maxwell, Alexander City, Ala.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Association of the State of Alabama; at one time secretary of the Talapoosa County Medical Society; formerly lecturer in hygiene and dermatology, University of Oregon Medical School, Portland; for several years health officer of Alexander City; aged 71; died, Dec. 24, 1929.

Levi Jay Hammond ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1886; past president of the Philadelphia County Medical Society; for many years instructor in aural surgery at his alma mater; formerly on the staffs of the Samaritan and the Methodist Episcopal hospitals; aged 67; died, January 6, of cerebral hemorrhage.

James R. Ball ✠ Lebanon, Ind.; Medical College of Indiana, Indianapolis, 1891; past president of the Boone County Medical Society; formerly on the staff of the Witham Memorial Hospital; aged 61; died, Dec. 25, 1929, at the Methodist Episcopal Hospital, Indianapolis, of septicemia, as the result of an abrasion received while treating a patient.

Ralph Eaton Miller, Bloomsburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1904; member of the Medical Society of the State of Pennsylvania; veteran of the Spanish-American and World wars; on the staff of the Bloomsburg Hospital; aged 54; died, Dec. 11, 1929, of angina pectoris and coronary embolism.

Paul William Wipperman ✠ New Orleans; University of Minnesota Medical School, Minneapolis, 1913; served during the World War; superintendent of the Touro Infirmary; formerly superintendent of the Decatur and Macon County Hospital, Decatur, Ill.; aged 40; died, January 2, of a streptococcus infection.

Stillman Smith Ham ✠ Schenectady, N. Y.; Albany Medical College, 1902; member of the American College of Physicians; past president of the Schenectady County Medical Society; served during the World War; on the staff of the Ellis Hospital; aged 51; died suddenly, Dec. 8, 1929, of heart disease.

Wilfrid Charles McKinnon, San Francisco; University and Bellevue Hospital Medical College, New York, 1925; member of the California Medical Association; aged 30; was killed, Dec. 20, 1929, while trying to stop his automobile, which, uncontrolled, was running down a hill.

Edmund Cone Carr ✠ Coshocton, Ohio; University of Wooster Medical Department, Cleveland, 1875; member of the

Central States Pediatric Society; past president of the Coshocton County Medical Society; aged 79; died, January 5, of carcinoma of the face.

Arthur W. Irwin, Oswego, N. Y.; Queen's University Faculty of Medicine, Kingston, 1896; member of the American College of Surgeons; on the staff of the Oswego Hospital; aged 54; died, Oct. 31, 1929, of arteriosclerosis.

Walter W. Dawson ✦ Grifton, N. C.; University of Maryland School of Medicine, Baltimore, 1897; member and past president of the state board of medical examiners; aged 55; died, recently, of a self-inflicted bullet wound.

Arthur Charles Bauer, Norwood, Ohio; Medical College of Ohio, Cincinnati, 1893; at one time coroner of Hamilton County; formerly health director of the public schools; aged 59; died, January 7, of coronary thrombosis.

J. Neil MacLean, Sarnia, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1898; served with the Canadian Army during the World War; aged 53; died, Dec. 10, 1929, at the Sarnia General Hospital.

John Wilson Shiels ✦ San Francisco; L.R.C.P., L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, 1895; served during the World War; aged 58; died, Dec. 30, 1929, at the Franklin Hospital, of carcinoma of the stomach.

Emil Schaible, La Fayette, Ind.; Bellevue Hospital Medical College, New York, 1889; member of the Indiana State Medical Association; aged 65; died in December, 1929, at St. Elizabeth's Hospital, of chronic myocarditis.

David Wilmot Roos, Manistique, Mich.; College of Physicians and Surgeons, Chicago, 1893; formerly secretary of the Schoolcraft County Medical Society; aged 63; died, Dec. 30, 1929, of a self-inflicted bullet wound.

Francis T. James, Uniontown, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1907; member of the Medical Association of the State of Alabama; aged 46; died in December, 1929, of heart disease.

Royden Arthur Laing ✦ Ellsworth, Ill.; Chicago College of Medicine and Surgery, 1917; on the staff of St. Joseph's Hospital, Bloomington; aged 40; died, January 4, of injuries received in an automobile accident.

Frank Lyman Griffith, Austin, Texas; Homeopathic Medical College of Missouri, St. Louis, 1888; formerly member of the state homeopathic examining board; aged 70; died in December, 1929, of heart disease.

J. Walter Jordan, Lexington, Miss.; University of Louisville (Ky.) School of Medicine, 1881; member of the Mississippi State Medical Association; aged 72; died, January 13, of bronchopneumonia.

Hans Nicolas Hovde, Duluth, Minn.; University of Oslo, Norway, 1890; member of the Minnesota State Medical Association; aged 68; died, Dec. 24, 1929, of angina pectoris and coronary sclerosis.

Samuel D. Kearney, Pelican, La.; University of the South Medical Department, Sewanee, Tenn., 1905; member of the Louisiana State Medical Society; aged 60; died, Dec. 28, 1929, of heart disease.

Samuel G. Adair, Beverly, Ohio; Medical College of Ohio, Cincinnati, 1879; Civil War veteran; for twenty years member of the school board; aged 82; died, January 7, of carcinoma of the stomach.

Oliver W. McGrew ✦ Columbus Junction, Iowa; Keokuk Medical College, 1905; formerly secretary of the Louisa County Medical Society; aged 56; died, recently, of cerebral hemorrhage.

James W. Armstrong ✦ Centralia, Ill.; Medical College of Indiana, Indianapolis, 1885; for seven years health officer of Centralia; aged 73; died, Dec. 19, 1929, of cerebral hemorrhage.

Randolph Lee Montgomery, Marlow, Okla.; Louisville (Ky.) Medical College, 1888; mayor of Marlow; served during the World War; aged 63; died, Dec. 28, 1929, of cerebral hemorrhage.

Joseph James Smith ✦ New York; Bellevue Hospital Medical College, New York, 1893; formerly on the staff of St. Joseph's Hospital; aged 63; died, January 8, of heart disease.

Sidney S. Staunton, Charleston, W. Va. (licensed, West Virginia, 1881); member of the West Virginia State Medical Association; aged 83; died, Dec. 11, 1929, of dilatation of the heart.

Glenn Dean Gallup, River Falls, Wis.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; aged 48; died, Dec. 5, 1929, at Owatonna, Minn., of myocarditis.

Fountain S. McGlathery, Birmingham, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; aged 69; died, Dec. 23, 1929, of lobar pneumonia and chronic colitis.

George L. Smart, Salt Lake City, Utah; Medical College of Ohio, Cincinnati, 1889; member of the Utah State Medical Association; aged 66; died, Nov. 1, 1929, of pneumonia.

Wallace Bruce Baker, Washington, D. C.; George Washington University Medical Department, Washington, 1920; aged 34; died, Oct. 27, 1929, of cirrhosis of the liver.

Joseph Atwood Cunningham, Jamaica, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1901; aged 54; died, Dec. 25, 1929, of heart disease.

Roy Oliver Thompson ✦ Calexico, Calif.; Medical Department of the University of Southern California, Los Angeles, 1914; aged 43; died, Dec. 22, 1929, of tuberculosis.

William H. Britt, Creighton, Neb.; State University of Iowa College of Medicine, Iowa City, 1884; aged 55; died suddenly, Nov. 1, 1929, of cerebral hemorrhage.

James Lester Gardner ✦ Central Village, Conn.; University of Vermont College of Medicine, Burlington, 1881; aged 75; died, January 15, of chronic nephritis.

George W. Whitfield, Chicago; Chicago Medical College, 1887; aged 69; died, Dec. 30, 1929, of cerebral arteriosclerosis and diverticulitis of the urinary bladder.

Willard M. McChesney, Edgerton, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1882; aged 73; died, Dec. 17, 1929, of arteriosclerosis.

William Edward Gomm, New Denver, B. C., Canada; Bellevue Hospital Medical College, New York, 1888; aged 63; died, Dec. 12, 1929, of heart disease.

Henry Roger Williams, Mobile, Ala.; Meharry Medical College, Nashville, Tenn., 1900; also a pharmacist; aged 60; died, Dec. 5, 1929, of brain tumor.

James Monroe Winegar, Hamilton, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1884; aged 79; died, Dec. 10, 1929, of cerebral hemorrhage.

Homer J. Shatto, Colebrook, Ohio; Medical Department of Western Reserve University, Cleveland, 1875; aged 86; died, Dec. 30, 1929, of acute nephritis.

William O'Connor, Chicago; Starling Medical College, Columbus, 1895; aged 56; died, Nov. 23, 1929, of cerebral hemorrhage and arteriosclerosis.

Robert Edward Lowe, Kansas City, Mo.; University Medical College of Kansas City, 1900; aged 62; died, Dec. 28, 1929, of a self-inflicted bullet wound.

Frederick Hopkins Strong, New York; Medical Department of Columbia College, New York, 1886; aged 64; died, Dec. 9, 1929, of pneumonia.

J. Thomas Mills, Toomsboro, Ga.; University of Georgia Medical Department, Augusta, 1900; aged 57; died, Dec. 10, 1929, of heart disease.

Herman P. Merrell ✦ Jackson, La.; Kentucky School of Medicine, Louisville, 1892; aged 59; died suddenly, Dec. 25, 1929, of heart disease.

Samuel N. Aller, Continental, Ohio; Eclectic Medical Institute, Cincinnati, 1882; aged 77; died, Dec. 22, 1929, of cerebral hemorrhage.

Howard W. Searight, Spokane, Wash.; Medical Department of Western Reserve University, Cleveland, 1882; aged 71; died, Dec. 23, 1929.

Raper H. Quick, Peru, Ind.; Medical Department of Butler University, Indianapolis, 1881; aged 77; died, Dec. 14, 1929, of chronic cystitis.

Chesley Bizzell Pipkin, Brownsville, Tenn. (licensed, Tennessee, 1913); aged 37; died, Dec. 5, 1929, of pulmonary tuberculosis.

J. L. Shorey, Woodburn, Ore.; College of Physicians and Surgeons, Baltimore, 1891; aged 64; died, Dec. 14, 1929, of paralysis.

Harry Sanborn Corey, Richmond, Va.; Boston University School of Medicine, 1896; aged 58; died, Dec. 14, 1929, of heart disease.

Frank Isaac Given, San Diego, Calif.; Bellevue Hospital Medical College, New York, 1886; aged 68; died, Oct. 20, 1929.

Alvis P. Brown, Princeton, Ind. (licensed, Indiana, 1897); aged 74; died, Dec. 25, 1929, of cerebral hemorrhage.

Frederick W. Stahl, Chicago (licensed, Illinois, 1899); aged 69; died, Nov. 13, 1929, of myocarditis.

Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food, Drug and Insecticide Administration of the United States Department of Agriculture

Lunge Heala.—The Norwich Pharmacal Company of Norwich, N. Y., shipped in October, 1928, and February, 1929, a quantity of Lunge Heala which the federal authorities declared was misbranded. When analyzed by the Bureau of Chemistry, the preparation was found to consist essentially of compounds of ammonium, calcium, sodium, potassium and phosphorus, with chlorides, tar, traces of menthol and chloroform and extracts of plant drugs, including wild cherry, together with alcohol, sugar and aromatic substances. The preparation was labeled as an effective remedy in whooping cough, spasmodic croup, bronchitis, coughs, etc. These claims were declared false and fraudulent and in February, 1929, the First National Laboratories, Inc., at Lehighton, Pa., appeared as claimant. Judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the claimant upon payment of costs and the execution of a bond of $5,000, conditioned in part that the preparation should not be disposed of until truthfully relabeled.—[*Notice of Judgment 16401; Issued December, 1929.*]

Armistead's Ague Tonic.—The W. M. Akin Medicine Company of Evansville, Ind., shipped in November, 1928, to Louisiana a quantity of Dr. R. A. Armistead's Ague Tonic, which was held to be misbranded. When analyzed by the federal chemists the stuff was found to consist essentially of quinine sulphate, extracts of plant drugs, sugar, alcohol and water, flavored with cinnamon. The statements on the label to the effect that the preparation was "without any of quinine's bad effects" and could be "given to the most delicate child" and that one need not "hesitate to take large and frequent doses" as it was "absolutely harmless," were declared false and misleading, while the therapeutic claims, to the effect that it was a remedy for influenza, malarial fever and various other conditions, were declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16404; Issued December, 1929.*]

Merle's Cod Liver Oil Tablets.—The Devore Manufacturing Company, Columbus, Ohio, shipped to Pennsylvania in February, 1929, a quantity of Merle's Cod Liver Oil Tablets, which were declared misbranded. Analysis showed the preparation to contain metallic iron, zinc compounds, phosphides, berberine, strychnine and a small amount of fish oil. The preparation was declared adulterated in that it was sold as a cod liver oil tablet and contained practically no cod liver oil. It was declared misbranded because false and misleading claims were made for its composition and the curative claims, to the effect that it was valuable in malnutrition, anemia, rickets, etc., were false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16407; Issued December, 1929.*]

Laxative Anti-Gripine.—The Anti-Gripine Company of Springfield, Mo., shipped in January, 1929, to Indiana a quantity of Laxative Anti-Gripine that was declared misbranded. The preparation, when analyzed, was found to consist essentially of acetanilid (215.8 grains per ounce), sodium salts, carbonates, red pepper, podophyllin, aconite alkaloids and extracts of plant drugs, including a laxative. The preparation was declared misbranded, first, because it was labeled as containing 240 grains of acetanilid when, as a matter of fact, it contained less than 216 grains; the therapeutic claims, to the effect that it was a remedy for influenza, neuralgia, coughs, etc., were declared false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16412; Issued December, 1929.*]

Arkadin.—This preparation, which was being sold in Porto Rico, was declared misbranded by the federal authorities. When analyzed by the government chemists it was found to consist essentially of creosote, menthol, benzoate of soda, guaiacol, phenol, mydriatic alkaloids, sugar, alcohol and water. The curative claims to the effect that it was a remedy for cough, influenza, asthma, bronchitis, etc., were declared false and fraudulent and in June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16409; Issued December, 1929.*]

Cod-Liver Oil Compound Tablets.—The Morgenstern Company, Brooklyn, N. Y., shipped in December, 1928, to California a quantity of Cod-Liver Oil Compound Tablets that the government declared were misbranded. When analyzed by the federal chemists the tablets were found to contain iron and zinc compounds, strychnine, extracts of plant drugs including ginger, and a laxative drug with a trace of fish oil. The preparation was declared misbranded, first, because the statement that it was a cod liver oil compound was false and misleading, and, second, because the curative claims, to the effect that it was a remedy for malnutrition, etc., were false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16411; Issued December, 1929.*]

Broncil.—The Modern Products Company of Rochester, N. Y., shipped to Connecticut in November, 1928, a quantity of Broncil that the government declared was misbranded. When analyzed it was found to consist essentially of ammonium chloride, menthol, tolu balsam, oil of eucalyptus, extracts of plant drugs, including wild cherry, tartar emetic, sugar and alcohol. The curative claims to the effect that it was a remedy for coughs, bronchitis and all bronchial diseases, were declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16406; Issued December, 1929.*]

Jarabe Compuesto Cocillana Tropical.—This preparation was sold in Porto Rico by the American Tropical Remedy Company of Santurce and was declared misbranded. The government analysis showed it to consist essentially of an extract of a plant drug, menthol, alcohol, sugar and water. The claims to the effect that it was an effective remedy for laryngitis, bronchitis, asthma, pleurisy, etc., were declared false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16410; Issued December, 1929.*]

McK & R Cold and Grippe Tablets.—McKesson and Robbins, Inc., Bridgeport, Conn., shipped to Massachusetts in January, 1929, a quantity of McK & R Cold and Grippe Tablets that were declared misbranded. When analyzed the tablets were found to contain acetanilid, cinchonidine, hydrobromide, camphor, aloin and a laxative plant drug extractive. The statements on the label, that the tablets were safe and did not depress or injure the system, were declared false and misleading; the curative claims, to the effect that the tablets were safe and did not depress or injure the system, were declared false and fraudulent. In May, 1929, the Eastern Drug Company of Boston, Mass., claimed the property and admitted the government's charges. Judgment of condemnation and forfeiture was

entered and the court ordered that the product be released to the claimant on payment of costs and the deposit of collateral security, conditioned that the tablets be taken from their containers and the containers, labels, wrappers, circulars, etc., be destroyed.—[*Notice of Judgment 16413; Issued December, 1929.*]

Amber-O-Latum.—The Amber-O-Latum Company, Springfield, Oregon, shipped to California in November, 1928, a quantity of Amber-O-Latum, which the federal authorities declared was misbranded. Analysis of a sample by the Bureau of Chemistry showed the product to consist essentially of an ointment with a lanolin and petrolatum base, containing oil of wintergreen, oil of mustard, camphor and eucalyptus. The therapeutic claims to the effect that it was a remedy for influenza, bronchitis, asthma, pneumonia, neuralgia, croup, etc., were declared false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16416; Issued December, 1929.*]

Griperol.—Gabriel J. Fajardo of New York City shipped in June, 1928, to Porto Rico a quantity of Griperol that was declared misbranded. Analysis by the Bureau of Chemistry showed the product to consist essentially of ammonium, hypophosphites, chlorides, cod liver oil extract, menthol, tar and other pine products, alcohol, sugar and water. It was declared adulterated in that the label claimed that it contained the extract of cod liver oil; it was declared misbranded because the curative claims, to the effect that it was a remedy for bronchitis, bronchial catarrh, grippe, etc., were false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16408; Issued December, 1929.*]

Mack's Cold Capsules.—The S. Pfeiffer Manufacturing Company of St. Louis, Mo., shipped to California in November, 1928, a quantity of Mack's Cold Capsules that the government declared were misbranded. When analyzed the capsules were found to contain acetanilid, quinine, sodium and potassium compounds, bromides, methyl salicylate and aloin. The curative claims to the effect that the product was a remedy for influenza, neuralgia, etc., were declared false and fraudulent and in June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16415; Issued December, 1929.*]

La Flugo Cold Tablets.—The Lincoln Pharmacal Company of Lincoln, Neb., shipped in November, 1927, to Missouri a quantity of La Flugo Special Cold Tablets, which the government declared were misbranded. When analyzed the government chemists found the tablets to contain calcium and sodium salts, sulphates, camphor, oleoresin of capsicum, traces of the alkaloids of ipecac and aconite, and extracts of plant drugs. The claim that it was an effective remedy for influenza was declared false and fraudulent and in May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16418; Issued December, 1929.*]

B B Headache Powders.—Bostwick Bros., Atlanta, Ga., shipped in July, 1928, to North Carolina a quantity of B B Headache Powders that the government declared were misbranded. When analyzed the powders were found to contain 3.3 grains of acetanilid, each, with aspirin, potassium bromide and caffeine. The article was declared misbranded, first, because the statement that the powders could be taken by people who could not take aspirin tablets was false and misleading, since the powders contained aspirin, while the therapeutic claims, to the effect that the powders were a remedy for neuralgia, influenza, sleeplessness, earache, female pain, etc., were false and fraudulent, as no ingredient was present to warrant the claims made. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16414; Issued December, 1929.*]

Mintol Vapocream.—A quantity of Mintol Vapocream shipped from Boston, Mass., to New Hampshire by a concern not named in the government's report was declared misbranded by the federal officials. Analysis by the Bureau of Chemistry showed the product to be an ointment with a petrolatum base, containing carbolic acid, formaldehyde, peppermint and eucalyptus oils, camphor and menthol. It was labeled as a remedy for influenza, spasmodic croup, pneumonia, whooping cough, tonsillitis, etc. These claims were declared false and fraudulent and in May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16419; Issued December, 1929.*]

Ru-Bon No. 1.—The Ru-Bon Chemical Company of Kansas City, Mo., shipped in January, 1929, to New York a quantity of Ru-Bon No. 1, which was declared misbranded. Government analysis showed the preparation to consist essentially of chrysarobin, ether, alcohol and water. It was labeled as a remedy for psoriasis, a claim which was declared false and fraudulent and in May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16422; Issued December, 1929.*]

Ru-Bon No. 2.—The Ru-Bon Chemical Company of Kansas City, Mo., shipped to California in July and August, 1928, a quantity of Ru-Bon No. 2, which was declared misbranded. The preparation, according to the government analysis, consisted essentially of chrysarobin, salicylic acid, resorcin, glycerin, volatile oils, alcohol and water. It was sold as a remedy

for acne, eczema, herpes, psoriasis and various other skin troubles. The claims were declared false and fraudulent and in October, 1928, the court ordered that the product be destroyed.—[*Notice of Judgment 16423; Issued December, 1929.*]

Ru-Bon No. 3.—The Ru-Bon Chemical Company of Kansas City, Mo., shipped in July, 1928, to Los Angeles, Cal., a quantity of Ru-Bon No. 3 that was declared misbranded. This preparation, on analysis, was found to contain resorcin, salicylic acid, chrysarobin, volatile oils, glycerin, alcohol and water. It was recommended as a remedy for eczema, psoriasis, salt rheum, scaly dandruff and various other conditions. These claims were declared false and fraudulent and in October, 1928, the court ordered that the product be destroyed.—[*Notice of Judgment 16424; Issued December, 1929.*]

Correspondence

THE PHYSICAL THERAPY TECHNICIAN

To the Editor:—Terminology in THE JOURNAL is uniformly as accurate as the titles of its articles are descriptive—so much so that one hesitates to question either of these did not an exception sometimes happen to prove the rule just given: The writer's attention has been called to the paper on "The Physical Therapeutist and the Postural Patient," by Olive Robinson, Hartford, Conn. (THE JOURNAL, Aug. 24, 1929, p. 578). The American Medical Directory does not mention a medical graduate of that name i Hartford, the inference being that the author of the otherwise excellent article is a physician's lay assistant. One therefore questions the propriety of her assuming the title of physical therapeutist.

Three years ago, when the carefully prepared medical practice act was about to be adopted by the state legislature, New York physicians strenuously objected to insertion of a clause by which laymen could be designated as "physiotherapists." The contention was that such use of the term would deceive an otherwise uninformed public—the suffix "ist" usually indicating a medical graduate—as otologist, neurologist, psychiatrist.

Failure to prevent addition of the harmful clause has led apparently to the beginning of another cult by imperfectly trained laymen that intrudes on the field of the educated physician. Although legally able to function only under the supervision of medical practicians, these licensed physiotherapists carry on in so-called institutes, beauty parlors, bath concerns and like commercial places whose medical direction may readily be doubted.

This serious situation was one reason, I believe, for discarding the special title of physiotherapist or physiotherapeutist by medical practicians and substitution of physical therapist or physical therapeutist as meaning a medical graduate who adds physical methods to his other treatment resources; also, for his specially trained nonmedical assistant to be known henceforth as a "physical therapy technician," the same as a clinical laboratory technician, an x-ray laboratory technician, and the like. The distinction is an important one. See "Report of Committee on Present Status of Physical Therapy" in THE JOURNAL, Oct. 16, 1926, p. 1302.

The purpose of this letter, then, is to ask general adoption of the changed nomenclature by the profession.

A. B. HIRSH, M.D., New York.

THE EFFECT OF A SUPRARENAL EXTRACT FOR MALIGNANT GROWTH

To the Editor:—In a report made to the San Francisco County Pathological Society, January 6, we pointed out that our experimental work on endocrine extracts began in 1925, attempting to find a vasodilator and a stabilizer of tissue growth. After many failures, an extract of suprarenal cortex from sheep was made which reduced blood pressure when injected subcutaneously. Further development of the work demonstrated that this extract was a stabilizer of growth. A few patients with high blood pressure together with a malignant condition had under treatment a lowering of blood pressure from 240 to 150, together with a sloughing of the malignant tissue and subsequently disappearance of the growth. Later, we injected the extract only in patients in whom the malignant growth was inoperable, with the possibility of obtaining autopsies. One patient, who had an embryonal carcinoma of the testes which could not be completely removed, was given the first injection, Aug. 22, 1927, and is now without any evidences of tumors. Another patient with inoperable carcinoma of the rectum and complete obstruction was referred for colostomy, and was given a first injection, Sept. 1, 1929. At present this patient is without any evidence of tumor and so far has had no ill effects from the injections and has apparently recovered. Within from twenty-four to forty-eight hours after the first dose, the tumor masses begin to soften, then liquefy, and within ten days begin to slough. If the masses are favorably located, many have even begun to slough within forty-eight hours. Although our series to date is small, we have had an opportunity to study the changes in the tissues of patients who died. (Others we observed clinically and were successful in obtaining autopsy.)

All tissues were studied by Dr. A. M. Moody. The essential changes are necrosis of tumor cells which cannot at present be differentiated from that occurring naturally in malignant tumors. They were present in one patient with primary carcinoma of the kidney; in the tissues of the lungs, about the secondary tumor nodules, which were all necrotic, marked vascularization surrounded each nodule. One patient who had received injections for two and a half months prior to death, and who died from kidney insufficiency as the result of bilateral ureteral obstruction, had atrophic suprarenals, measuring only 3 mm. in thickness. This was a primary carcinoma of the cervix which, during the course of injections, had sloughed away. No secondary growths beyond the uterus and bladder were found, although microscopic scattered mitosing cells were present in the bladder wall.

This work to date has been purely of an experimental nature to determine the effect on malignant tumors. Softening with liquefaction has occurred in all tumors thus far studied. These tumors, except one, were carcinoma of different types; the exception is a recurrent spindle cell sarcoma, with extensive metastases. Because of these results, a broad plan of study has been outlined with a determination to discover as soon as possible the value, if any, of this extract in cancer. Until such time as additional data become available, we wish to impress on the medical profession the fact that the work to date, although quite promising, is still in the experimental stage and therefore decidedly inconclusive. The pathologic studies have been made by Dr. A. M. Moody, pathologist of the St. Francis Hospital.

WALTER B. COFFEY, M.D.,
JOHN D. HUMBER, M.D.,
San Francisco.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NOCTURNAL EPILEPSY

To the Editor:—A woman, aged 36, has had three children, all normally delivered. Up to three years ago she was in perfect health, but since the birth of her last child she has been subject to epileptiform seizures that come on at the time she menstruates and only while she is asleep. Seizures last from ten minutes to half an hour. At one time she had two in rapid succession, similar to status epilepticus. Hysterectomy was done for fibrosis, and both ovaries showed atrophic changes. Since the operation, the attacks have been less severe. Her husband notices that her breath is foul during an attack, but this passes away with the seizure. Organic disease has apparently been ruled out, she has never had any accidents, and she is seemingly without complaint when she is up and about doing her housework. She is now taking whole ovary and thyroid on the possibility that there is a depletion of this secretion. What could be the cause of the foul breath: a transient uremic state? Are there any cases on record of seizures coming on only during sleep? Repeated examinations of the urine show nothing pathologic. There is complaint of pain of an aching type over the kidney region just after the attacks. What else might cause the seizures? Please omit my name.

M.D., New York.

ANSWER.—Epileptic seizures limited to occurrence only during sleep are quite frequent. This so-called nocturnal epilepsy may be present for some time before attacks occur during the day. Probably the foul breath has nothing whatever to do with the convulsions. If organic disease has definitely been ruled out and all physical defects as far as possible have been corrected,

one should place the patient on appropriate doses of phenobarbital. In this particular case 0.1 Gm. (1½ grains) after the evening meal should suffice, although it is possible that this may be too small a dose.

SCARLET FEVER TOXIN

To the Editor:—November 8, a child, aged 5 years, was given 1 cc. of Larsen's scarlet fever toxin as a prophylactic against scarlet fever. November 26 the child presented a fine red rash much like that seen with scarlet fever. This rash was accompanied by a sore throat and a rise in temperature of half a degree. There was some redness of the soft palate and fauces. The child complained of itching and for a day or so did not care for food. However, the mother stated that the child was not nauseated and did not vomit. After fifty or sixty hours the rash had practically disappeared and aside from a slight swelling of the tonsils, which normally are enlarged, the child seemed to be in good condition. The questions arising in this case that I would appreciate your opinion on are as follows:

1. Would a 1 cc. dose of toxin given on November 8 produce an anaphylaxis as late as November 26?
2. Would a dose of toxin, if it gave a reaction at this time, have a tendency to produce a sore throat?
3. Would it be possible for a child to have a mild scarlet fever with the symptoms as we have enumerated them after having one immunizing dose of scarlet fever toxin?
4. In your opinion would a case presenting any eruption accompanied by a sore throat, such as that mentioned, with but little fever and no nausea and vomiting be more likely to be scarlet fever or an anaphylaxis from either the toxin or some other source?

L. H. MILLER, M.D., Pana, Ill.

ANSWER.—1. No.
2. No.
3. Yes, especially with ricinoleated toxin.
4. Scarlet fever toxin does not produce sore throat. The reaction following it occurs in a few hours and rarely persists over twenty-four hours. Properly prepared scarlet fever toxin contains no foreign serum and should not cause anaphylaxis.

TREATMENT OF THYROID INTOXICATION

To the Editor:—What percentage of cases of thyroid intoxication respond to medical treatment? In a case in which the symptoms are mild or just beginning may compound solution of iodine (Lugol's solution) be given or should some other form of iodine be used? Should compound solution of iodine be saved and given only preoperatively? When there is a marked response to compound solution of iodine before operation, all symptoms clearing up, should all patients be operated on? Should digitalis be used continually before operation or only when there is evidence of myocardial injury? Kindly omit name.

M.D., Pennsylvania.

ANSWER.—Knowledge of the physiology and treatment of disturbances of the thyroid has increased greatly in the last twenty years. Nevertheless, if these and other important questions were submitted to a number of physicians who have studied the subject carefully there would not be unanimity in their answers. Some hold the rather radical view that all patients with hyperthyroidism should be operated on; others, including men who have devoted years of study to thyroid disease, believe that ultimately almost all cases of hyperthyroidism will be successfully treated without operation. Obviously the generally current shades of opinion lie somewhere between these extremes.

Practically all cases of thyroid intoxication respond in some degree to medical methods of treatment, which may include, among others, depending on the severity of symptoms, measures to reduce nervous and bodily activity, rest in bed, iodine, roentgen rays, and sedatives if necessary. Hyperthyroidism tends to run a course of cycles of exacerbation and improvement. For years before surgical measures were devised or considered, hyperthyroidism was recognized and treated medically with at least some success except in severe toxic cases.

With present methods of medical treatment, especially in early and mild cases, symptoms may all subside and obviously operation is neither necessary nor desirable. The percentage of cases in which medical treatment affords adequate relief will vary in different communities, depending on whether the early and less severe cases are included. Groups of cases referred to clinics in which the chief emphasis is known to be on surgical treatment are likely to contain higher percentages of cases of long standing, less completely and favorably affected by medical treatment.

Many physicians use iodides, such as sodium iodide, and compound solution of iodine with equal success. Insistence on the uniform withholding of iodine from prospective subjects of operation until just before operation is unwise, because this practice deprives certain patients of the improvement they might enjoy, and in serious cases may allow injury to the heart muscle resulting from prolonged overaction to progress still further and may even raise still more the operative risk in this class of cases.

In cases of moderate grade in which under medical treatment the symptoms subside to a marked degree, the question whether to advise immediate operation is sometimes difficult. A history as to previous exacerbations of thyroid activity, the present condition of the heart, and the economic status of the patient—whether he can be relieved of the stress of life or must return at once to his previous work—are among the factors to be considered. The danger that further delay may result in operation later under less favorable conditions of thyroid activity and cardiac efficiency must be recognized. It is also to be remembered that surgical treatment does not invariably result in permanent cure.

The use of digitalis must be decided on by the cardiac requirement in the individual case, consideration being given also to the temporary increase in cardiac load entailed by the operation. Some patients do not require digitalis; others with cardiac weakness and irregularity are much benefited by suitable doses both before and after operation.

REFRACTION AND DIAGNOSIS OF LOSS OF VISION

To the Editor:—A man, about 68 years of age, whose sight is getting bad, just cannot see at any long distance. Ophthalmoscopic examination does not show any formation of cataract. Lenses of different strength do not effect any improvement. He can see to do work close. I made a test as to distance with a big brick house about 250 feet from my office; he could barely make out to tell that it was a house. I then got him to look through an eight power binocular and he could see each separate brick. What would the ultraviolet rays do for him or any other form of electricity, and how would they be applied?

C. A. STULTZ, M.D., Woodsboro, Md.

ANSWER.—It is an absolute certainty that neither ultraviolet nor infra-red radiation nor any form of electricity would be of any value; but it does seem reasonable to suppose that the patient might benefit from a careful ophthalmic examination, which would undoubtedly disclose the cause of the failing vision, after which appropriate treatment could be instituted. From the description of the case, one would be led to think of a macular lesion in a myopic eye. The reason the vision was improved with the binocular is that the retinal image is magnified eight diameters by the optical system employed and the perimacular areas of the retina are brought into play.

ACUTE ZINC POISONING IN TANK WELDERS

To the Editor:—Recently, a man, aged 28, welder for a tank firm, came to me complaining of a dull frontal and occipital headache, nausea and vomiting, herpes on the upper lip, and sore throat and diarrhea. Nov. 20, 1929, he welded a galvanized steel tank for about three hours in the afternoon and he had a headache. The next morning he worked on the same piece of work for about three and one-half hours when he became nauseated and vomited. He stopped work, went home to bed, and shortly afterward began to have griping pains in the abdomen, associated with diarrhea. The next day both conjunctivae were inflamed and the herpes appeared. These symptoms are still present. This is the fifth attack and he states that they always follow working on welding galvanized steel and usually last two or three days and that heretofore home remedies and rest in bed have sufficed. He also tells me that there are five other welders doing the same class of work in the same shop and that they all are affected each time as he is. Examination shows a normal urine, temperature 99.6 F. (by mouth), blood pressure 140 systolic and 62 diastolic, pulse rate 74 (for a full minute), with no irregularities, and chest and heart normal. Both conjunctivae, especially the right, are red and inflamed and there are herpes on the upper lip, and the man looks sick. Please advise whether there is any connection between the patient's occupation and his symptoms (objective and subjective). I should like to know whether this can or should be classed as an occupational disease and if so what is the explanation. Please omit name.

M.D., Texas.

ANSWER.—The condition described is that of acute zinc poisoning. The galvanizing coating for the steel is zinc and is readily vaporized in welding processes forming zinc oxide. In addition, there may be an element of contributory action from the ultraviolet rays emanating from the welding torch, producing conjunctivitis, from hydrogen sulphide and hydrogen phosphide (phosphine) in the acetylene. Based on the description given as to exposure and manifestations, this is an occupational injury—acute zinc poisoning.

In the typical occurrence of this disease the conjunctivae are inflamed; the nose, throat and bronchi feel dry and are sore and burn; headache develops, along with malaise, which later becomes a profound weakness; nausea and vomiting are characteristic. Within a short time (two or three hours) chills arise which in some instances closely simulate malarial chills in severity; blurred vision and great thirst are additional features. Usually, abdominal manifestations are limited to discomfort rather than being severe cramps, although muscle and joint

pains may be severe. The patient is subjectively ill at this stage and objectively has the appearance of dire illness. The attack ends by crisis, after from six to ten hours, terminating in deep sleep, from which the patient awakens depleted and loathing food but commonly able to resume work.

The present instance simulates, in many essential features, the typical case. Herpes, diarrhea and severe abdominal pains present variations, but not enough to jeopardize the diagnosis.

Supplemental deleterious action from hydrogen phosphide (phosphine), hydrogen sulphide, carbon monoxide or hydrogen arsenide (arsine) may have distorted the exact clinical features of zinc action.

BLEEDING FROM URETHRA AND DIFFERENTIAL DIAGNOSIS

To the Editor:—A single man, aged 19, complained of a severe painless hemorrhage from the penis, immediately following intercourse. Six weeks previously he had had a urethral discharge, which he thought was gonorrhea but which had never been brought to the attention of a physician. This discharge gradually lessened without treatment. He has had several similar hemorrhages, two or three days apart, following urination. Each time the blood is bright red and flows in a steady stream from the penis after he has ceased to urinate. The bleeding is controllable by pressure around the penis. He has lost 30 pounds (13.6 Kg.) in the past two months. Otherwise there are no constitutional symptoms; he has a good appetite, sleeps well, feels well, has no pain of any sort, no frequency, no dysuria, no nocturia. On examination I found blood oozing from the penis in a steady drip. It was bright red and as viscous as blood usually is when undiluted. A few minutes' pressure round the penis controlled the bleeding. There was no swelling or other tumor mass in the penis. There were several large slightly tender lymph nodes in each groin. The patellar reflexes were absent. Neither kidney nor spleen was palpable or tender. There were no palpable masses in the abdomen. Examination of the heart and lungs revealed no pathologic signs. On urination the following day, when there was no bleeding, the first glass of urine did not contain blood but was cloudy with pus, as shown by the microscope. The second glass soon became bright red with blood, and blood continued to drip from the penis after he had ceased to urinate, and until it was stopped by pressure. On cystoscopic examination the bladder was easily cleared of blood and no inflammation or tumors were found in it. There was no bleeding from the ureters. The bladder neck seemed to be red and tight, and the cystoscope entered the bladder with considerable resistance. Following cystoscopy, there was no bleeding until several hours later. Blood examination revealed red cells, 5,120,000; white cells, 9,750, with a preponderance of polymorphonuclear cells. The temperature was 98.4. Rectal examination revealed a prostate of normal size and consistency and not tender. The seminal vesicles stripped easily and contained a large amount of fluid. They were not tender. No tumor masses were felt by rectum. Any assistance or advice that you can give me will be greatly appreciated.

M.D., Michigan.

ANSWER.—The symptoms reported suggest forcibly the presence of varicosities within the urethral mucosa. The absence of subjective complaints militates against the diagnosis of angioma. The diagnosis will be established definitely by a carefully executed urethroscopy. In the field of view varicosities appear as bluish, meandering protuberances. Quite often an attached coagulum marks the site of the last hemorrhage. If the urethra is filled with a contrast fluid and a roentgenogram is taken after the meatus has been closed, varicosities will produce filling defects of a smoothly contoured surface in contradistinction to the ragged outline due to the presence of an angioma or an intra-urethral caruncle. In rare instances polypoid excrescences may be the source of spontaneous hemorrhages, but these formations are also accompanied by pronounced subjective annoyances. The treatment is destruction by diathermy applied through a wide urethroscope. The application of a 10 per cent solution of procaine hydrochloride to the mucosa and the grounding of the indifferent electrode makes this operation absolutely painless.

CRUDE OIL TREATMENTS OF HAIR AND SCALP

To the Editor:—I have been referred to you by the Bureau of Mines in Washington regarding the use of crude oil in preparations for applying to the scalp and to other parts of the head. I should like to know what effect the crude oil has, to make it essential for such preparations. I should also like to know whether the crude oil contains any substance that is beneficial to the hair.

N. H. WEISS, New York.

ANSWER.—The use of crude petroleum for human skin troubles, including those of the scalp, doubtless comes from its use as a parasiticide in domestic animals. Its parasiticidal effects are due to the presence of phenols and cresols, which are not only parasiticidal and antiseptic but also irritant. The quantities of these are variable and uncertain; they often produce dermatitis and the oil is an unscientific and unsatisfactory, not to say unsafe, means of treatment. It is not to be recommended for any scalp condition.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 4, 1930. Sec., Dr. Harry C. DeVighne, Juneau, Alaska.

CALIFORNIA: Los Angeles, Feb. 3-6, 1930. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

CONNECTICUT: New Haven, Basic Science, Feb. 8, 1930. State Board of Healing Arts, 1895 Yale Station, New Haven, Conn.

MAINE: Portland, March 11-12, 1930. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland, Me.

MASSACHUSETTS: Boston, March 11-13, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

NATIONAL BOARD: Parts I and II, Feb. 12-14, 1930. In all centers where there are five or more candidates. Dir. Mr. E. S. Elwood, 225 So. 15th St., Philadelphia, Pa.

NEBRASKA: Omaha, Feb. 4-6, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEW HAMPSHIRE: Concord, March 13-14, 1930. Sec., Dr. Charles Duncan, Concord, N. H.

OKLAHOMA: Oklahoma City, March 11-12, 1930. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PHILIPPINE ISLANDS: Manila, Feb. 11, 1930. Sec., Dr. Jose V. Gloria, 341 Ronquillo Station, Cruz, Manila, P. I.

PORTO RICO: San Juan, March 4, 1930. Sec., Dr. Diego A. Biascoechea, 3 Allen St., San Juan, P. R.

VERMONT: Burlington, Feb. 11-13, 1930. Sec., Dr. W. Scott Nay, Underhill, Vt.

WYOMING: Cheyenne, Feb. 3, 1930. Sec., Dr. W. H. Hassed, State Capitol Bldg., Cheyenne, Wyo.

Ohio Reciprocity Report

Dr. H. M. Platter, secretary of the state medical board, reports 21 physicians licensed by reciprocity with other states, 4 by endorsement of credentials and 1 granted a license after taking the examination in June, at a meeting held Oct. 1, 1929. The following colleges were represented:

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
College of Medical Evangelists	(1929)	California
University of Colorado School of Medicine	(1928)	Colorado
Howard University School of Medicine	(1928)	Tennessee
Rush Medical College	(1929)	Illinois
Indiana University School of Medicine	(1927)	Indiana
State University of Iowa College of Medicine	(1920)	Iowa
Louisville Medical College	(1897)	Kentucky
University of Louisville School of Medicine	(1928)	Kentucky
Johns Hopkins University School of Medicine	(1927)	Maryland
Harvard University Medical School	(1928)	Virginia
University of Michigan Medical School	(1925), (1928-2)	Michigan
Columbia University College of Phys. & Surgs.	(1884)	Alabama
University and Bellevue Hospital Medical College	(1928)	New York
University of Pennsylvania School of Medicine	(1926)	New York
Women's Medical College of Pennsylvania	(1915)	Penna.
Medical College of the State of South Carolina	(1926)	S. Carolina
Meharry Medical College	(1928)	Tennessee
Medical College of Virginia	(1928)	Virginia
Marquette University School of Medicine	(1929)	Wisconsin

College	ENDORSEMENT OF CREDENTIALS Year Grad.	Endorsement with
Yale University School of Medicine	(1927)	N. B. M. Ex.
Harvard University Medical School	(1927)	N. B. M. Ex.
Western Reserve University School of Medicine	(1928-2)	N. B. M. Ex.

	EXAMINATION	
Ohio State University College of Medicine	(1929)	84.1*

* This applicant passed examination in June.

Illinois October Examination

Mr. V. C. Michels, former superintendent of registration of the state of Illinois, reports the written and practical examination held at Springfield, Oct. 8-10, 1929. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty candidates were examined, 50 of whom passed and 10 failed. Thirty-one physicians were licensed through reciprocity with other states and 10 were licensed by endorsement of their credentials. The following colleges were represented:

College	PASSED Year Grad.	Per Ct.
Howard University School of Medicine	(1928)	77
Loyola University School of Medicine	(1929) 77, 77, 78, 78,	80
Northwestern University Medical School	(1928) 78, 80, (1929) 77, 77, 78, 79, 80, 80, 81, 81, 82, 82, 82, 83, 83, 83	77,
Rush Medical School	(1929) 75, 78, 80, 80, 82, 83, 84, 84, 84,	85
University of Illinois College of Medicine	(1929) 81, 82, 84, 85, 85, 85, 87	77,
Johns Hopkins University School of Medicine	(1927)	87
Washington University School of Medicine	(1927)	83
Marquette University School of Medicine	(1929)	77
University of Vienna Faculty of Medicine, Austria	(1919)	76*

University of Munich Faculty of Medicine.....(1923) 76*
Licentiate of the Triple Qualification Bd. of Scotland...(1923) 83
Nondescripts.....76, 76, 80, 82

FAILED

Howard University School of Medicine.....(1928) 72
Loyola University School of Medicine.....(1929) 72
Rush Medical College.....(1929) 70
University of Illinois College of Medicine.....(1929) 86†
Meharry Medical College.....(1928) 70
Marquette University School of Medicine.....(1929) 79†
Albertus University Faculty of Medicine, Königsberg...(1927) 72
National University of Athens Faculty of Medicine....(1916) 57*
Nondescript..... 69, 74

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University School of Medicine	(1923) Penn.	(1928)	Tennessee
Rush Medical College		(1916)	Ohio
Indiana Med. Coll. School of Med. of Purdue Univ.		(1907)	Indiana
Indiana University School of Medicine		(1927)	Indiana
State University of Iowa College of Medicine		(1906) (1928)	Iowa
Hospital College of Medicine, Louisville		(1905)	Kentucky
University of Louisville School of Medicine		(1926)	Kentucky
Tulane University of Louisiana School of Medicine		(1924)	Louisiana
University of Minnesota Medical School		(1928-2)	Minnesota
St. Louis University School of Medicine	(1912) (1923) (1926)	(1928-3)	Missouri
Washington University School of Medicine	(1925) Minnesota; (1927)	(1928)	Missouri
University of Nebraska College of Medicine		(1920), (1924)	Nebraska
Albany Medical College		(1906)	Montana
Bellevue Hospital Medical College		(1898)	Minnesota
Medical College of Ohio		(1902)	Ohio
Jefferson Medical College		(1918)	Wisconsin
University of Pennsylvania School of Medicine		(1926)	Penna.
University of Pittsburgh School of Medicine		(1924)	Penna.
University of Wisconsin Medical School		(1929)	California

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1926)	N. B. M. Ex.
University of Illinois College of Medicine		(1928-2)	(1929) N. B. M. Ex.
Harvard University Medical School		(1928-2)	N. B. M. Ex.
St. Louis University School of Medicine		(1928)	N. B. M. Ex.
Washington University School of Medicine		(1927)	(1928) N. B. M. Ex.
Western Reserve University School of Medicine		(1928)	N. B. M. Ex.
University of Manitoba Faculty of Medicine		(1927)	N. B. M. Ex.

* Verification of graduation in process.
† Failed clinical examination.

Book Notices

THE NEWER KNOWLEDGE OF NUTRITION: THE USE OF FOODS FOR THE PRESERVATION OF VITALITY AND HEALTH. By E. V. McCollum, Ph.D., Sc.D., Professor of Chemical Hygiene in the School of Hygiene and Public Health of the Johns Hopkins University, and Nina Simmonds, Sc.D. Fourth edition. Cloth. Price, $5. Pp. 594, with illustrations. New York: Macmillan Company, 1929.

This account of the development of our knowledge of nutrition in the last thirty years is dedicated to the Dutch physician C. Eijkman, who was the first to produce experimentally a disease of dietary origin. Knowledge of nutrition has increased rapidly since then. This book, to a considerable extent, is taken up with descriptions of the experiments that mark the progress of this work. Some of the most interesting were the experiments at the Wisconsin Experiment Station in 1906, planned by Babcock and later carried on by Hart, Humphrey, Steenbock and McCollum; those of Hopkins, of Osborne and Mendel, and those of Funk. The authors of this book, too, stand out among the pioneer investigators. Lavoisier is given the credit, however, for introducing, in 1870, the modern era of the science of nutrition. He established the fact that the production of heat was a process of combustion which involved the combination of oxygen of the air with the substances taken as food. He discovered that the temperature of the air had a pronounced influence on the rate at which substances in the body are oxidized. The bibliography of the third edition of this book contained 1,870 references; in the present edition the attempt to include a complete bibliography was given up. So fast has the literature on nutrition accumulated in the last four years that to include all references to the literature would make the book unwieldy. The omission of a complete bibliography was feasible, as the authors say, because the bibliography of nutrition is available in the *Quarterly Cumulative Index Medicus* and in *Chemical Abstracts*, which are in numerous libraries. The discussion of dietary deficiency diseases begins with xerophthalmia and vitamin A, and continues through chapters on beriberi and vitamin B, scurvy and vitamin C, and rickets and vitamin D. A chapter on the use of ultraviolet rays in the prevention and treatment of rickets ends by noting the tendency at present to exaggerate claims as to what can be accomplished by ultraviolet ray treatment. "It is so easy to do harm by excessive irradiation that ultraviolet lamps should be used only on the advice and under the supervision of a well qualified physician." Vitamin E is discussed in a chapter on the relation between nutrition and fertility, and vitamin G in the following chapter on the relation of pellagra to diet. The authors believe that one can conclude from the confusing studies on the etiology of pellagra that the cause is a faulty diet. The evidence, however, is hardly convincing enough to establish fully Goldberger's theory that pellagra is caused by deficiency of the heat-stable substance vitamin G. Jobling's theory that light sensitization plays a part in the etiology of pellagra deserves more attention than it has received. The romance (scientific, of course) closes with chapters on iodine deficiency in goiter, on the dietary habits of various nations, and on diet in relation to the teeth; the final chapter is concerned with new points of view in human nutrition.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 33, Band VII. Rückfallfieber von Prof. Dr. P. Mühlens. Third edition. Paper. Price, 12 marks. Pp. 383-486, with 34 illustrations. Jena: Gustav Fischer, 1929.

The spirochetes of the relapsing fevers are dealt with in a thorough and systematic way by Mühlens of Hamburg, one of the leading authorities on this group. Nine different types of spirochetes associated with relapsing fevers in different parts of the world are recognized, but the author wisely makes the reservation that it is for the future to determine whether this is too many or too few. The generic name *Spirochaeta* is used, as by most German writers, instead of the name *Treponema* preferred by Noguchi and many others. The somewhat lavish use of boldface type in this article makes it easier for the reader to find the topic he wants than is the case in many other divisions of the Handbuch.

OXFORD MONOGRAPHS ON DIAGNOSIS AND TREATMENT. Edited by Henry A. Christian, M.D., Sc.D., LL.D., Hersey Professor of the Theory and Practice of Physic, Harvard University. Volume VI: The Diagnosis and Treatment of Arthritis. By Russell L. Cecil, M.D., Sc.D., Assistant Professor of Clinical Medicine, Cornell University. Cloth. Price, $100 per set of 10 volumes. Pp. 216, with 14 illustrations. New York: Oxford University Press, 1929.

This volume in the series of monographs now being issued by the Oxford University Press begins with rheumatic fever, which had brief consideration in the volume on the heart by Dr. Henry A. Christian, who edits the entire series. The consideration of rheumatic fever is one of the most succinct and accurate in modern American literature. It sustains the heights set by previous volumes in the series as far as concerns its practical value. If there is any criticism, it is perhaps to the extreme emphasis placed by the author on the infection of the tonsils as a primary cause and on the removal of the tonsils in prophylaxis. He does not consider the work of Small or of Burbank as established, nor does he consider any of the specific treatments as of demonstrated value. Foreign proteins, with which he has himself experimented, he considers as a suitable method for trial in arthritic cases only after salicylates have failed. The book also treats extensively of arthritis produced by other bacteria than the streptococcus and of the forms of joint inflammation associated with various infectious diseases. Of especial interest is the section on the treatment of chronic infectious arthritis. Dr. Cecil has not been particularly encouraged by the use of *o*-iodoxybenzoic acid in treatment.

DISEASES OF THE NERVOUS SYSTEM: A Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D., Superintendent of St. Elizabeth's Hospital, Washington, D. C. Fifth edition. Cloth. Price, $9.50 net. Pp. 1174, with 489 illustrations. Philadelphia: Lea & Febiger, 1929.

From its first publication, this work has been a standard among textbooks in its field. The present edition has been so completely revised that hardly a single chapter remains as it was in the fourth edition. The authors point out in their preface that special attention has been given to the vegetative nervous system and also particularly to the concept of the nervous system as a coordinator of experience with the outside world. They apologize somewhat for having accepted perhaps

too early the newer researches in this field but believe that a healthy optimism is to be preferred to a studied conservatism. The thousands of unsolved problems in the field of neurology and psychiatry are indeed an indication of how greatly research is needed in these fields. The book is excellently illustrated, particularly in the section on endocrinopathies. The section on symbolic neurology offers Dr. White's conception of freudianism, with its application to the diagnosis and treatment of neuroses and psychoneuroses. For the student it is one of the best brief guides to modern psychiatric methods that is anywhere available.

THE CAUSES AND PREVENTION OF MATERNAL MORTALITY. By Henry Jellett, Consulting Obstetrician to the Department of Health, New Zealand. Churchill's Empire Series. Cloth. Price, 15s. Pp. 300. London: J. & A. Churchill, 1929.

Dr. Jellett has had extensive experience in obstetrics both in Ireland and in New Zealand from the teaching and practicing point of view. He feels that physicians run after method and neglect men and women; that they create hospitals which make intervention during labor easy and obstetric operations safe. The author has planned to present the principles of obstetrics and this he does soundly, particularly from the British point of view. This is in no sense of the word a textbook of obstetrics —it is rather an inspiring document leading toward more and better knowledge in obstetrics for the various groups particularly interested in such work.

DE OCULIS: EORUMQUE EGRITUDINIBUS ET CURIS. Ab Benevenutus Grassus. Translated with notes and illustrations, from the first printed edition, Ferrara, 1474 A. D., by Casey A. Wood, M.D., LL.D. Boards. Price, $5. Pp. 101. Stanford University: Stanford University Press, 1929.

For more than five hundred years this book was the standard treatise on ophthalmology. Some forty editions have been published since the earliest times. In his introduction, Dr. Casey A. Wood provides a brief account of the life of the author and of the history of the work. The translation is sympathetic and scientifically sound, and it is adequately supplemented by a description of the various previous editions. The edition is, in every sense of the word, a work of art and a credit to the Stanford University Press. Every ophthalmologist who takes pride in the background of his subject will enjoy the possession of this beautiful book.

JOHN DALTON: EXPERIMENTAL PHYSIOLOGIST AND WOULD-BE PHYSICIAN. By E. M. Brockbank, M.B.E., M.D., F.R.C.P., President of the Section of History of Medicine, British Medical Association, Manchester and Salford, 1929. Paper. Pp. 18, with illustrations. Manchester: George Falkner & Sons, Ltd., 1929.

This booklet is a reprint of an article read before the Section of History of Medicine in the annual meeting of the British Medical Association. John Dalton was a school teacher who wanted to be a doctor but who never took a regular course in physic. He discovered color blindness, of which he himself suffered. Brockbank points out that the discovery was made when Dalton presented his mother with a pair of scarlet stockings, thinking that they were dark blue. He himself states that the matter first came to his attention in the study of botany. His essays on the mind, on the physiology of food and on the atmosphere are all of great medical interest. It is also interesting to know that one of Dalton's pupils was Dr. W. W. Mayo, who eventually settled in Rochester, Minn.

MASTOIDS ROENTGENOLOGICALLY CONSIDERED. By Frederick M. Law, M.D., Roentgenologist, Manhattan Eye, Ear, Nose and Throat Hospital, New York. Volume I of the Annals of Roentgenology: A Series of Monographic Atlases. Edited by James T. Case, M.D. Second edition. Cloth. Price, $12. Pp. 42 plus 35 plates, with 10 illustrations. New York: Paul B. Hoeber, Inc., 1929.

In this edition a few changes and additions have been made. There has been an increase of one test illustration and of the twenty-eight roentgen-ray studies, and the text has been somewhat revised. This is an exceedingly valuable work for any one interested in the changes of the mastoid cells as a result not only of acute and chronic suppurative processes but also of the anatomic changes that may otherwise occur. The text, though rather short, covers the subject well; the type is clear, and the illustrations are good. The plates are excellent and should prove of immense value to otologists in their studies of films made on their own patients. In the first edition, the description of the plates was given in English, French and Spanish, but by agreement with the editor and publisher, it was decided to omit the Spanish and French translation in the second edition as "it did not seem fair to place the added burden of the expense of the translation upon the English speaking users of the atlas. It also seemed advisable to substitute half-tone reproductions for the photographic plates used in the first edition."

Medicolegal

Sphincter Ani Muscle Severed in Hemorrhoidectomy

(Hughes et al. v. Weaver (Ga.), 148 S. E. 12)

The appellants, Dr. N. A. Hughes and "Dr. Smith," were sued by the appellee for alleged malpractice in performing an operation on her. The city court of Atlanta gave judgment against the appellants for $10,000 and they appealed to the court of appeals of Georgia, division 2, where the judgment of the city court was affirmed.

The petition alleged that the physicians had negligently, while operating on the appellee for hemorrhoids, cut and severed the sphincter ani muscle and in doing so "did not exercise that degree of care and skill that surgeons engaged in the same general line of service would have used in performing the same and similar operations," and that the severing of the muscle was totally unnecessary. This petition, said the appellate court, set forth a cause of action. The allegation that the appellants in severing the muscle failed to exercise the degree of care and skill which surgeons engaged in the same general line of service would have used did not amount to a mere conclusion, in view of the allegation that it was wholly unnecessary to cut the muscle in order to perform the operation. The testimony of the appellee, concerning her condition after the operation and treatment by the appellants, was properly admitted in evidence, said the court, and was not objectionable on the ground that the condition testified about existed after other physicians had treated her. The testimony of the physicians who treated the appellee after the operation was properly admitted, in view of the testimony of each concerning his training and experience, although they did not qualify as specialists in surgery. The weight to be given such testimony is for the jury. One of the appellants apparently discontinued treating the appellee and left for Florida. The testimony of the appellee that she employed another physician after that appellant "had quit my case," and after she had made an effort to induce him to return to the treatment, was not misleading or prejudicial and was properly admitted.

The appellants complained that the city court erred in charging the jury that one of the appellants, Dr. Smith, contended that, even if the muscle was cut, and that the cutting thereof was negligent, it was not his act and that, if there was no participation by Dr. Smith in the act, he would not be liable. Objection was entered to this charge because the theory of the defense indicated in it was not advanced by the appellant Smith and to present the charge to the jury, it was contended, was confusing, misleading and prejudicial to the appellants. The fact that the court suggested in this charge, said the appellate court, that one of the appellants might not be liable for the act of the other cannot be taken as prejudicial to either of them, or as an expression of opinion on the facts of the case, since it was clearly indicated, throughout the charge, that each of the appellants denied that the act complained of had been committed.

The appellee's husband testified that, prior to the employment of the appellants, he read an advertisement signed by the appellant Smith, published in a daily paper having a large circulation, setting forth the skill of the appellants in "this particular line of surgery," and that he was thereby induced to employ them. This testimony, having been admitted over the objection of the appellants, was subsequently ruled out but the appellants insisted that the city court should have declared a mistrial on the ground that the testimony was calculated to prejudice the appellants in the minds of the jury. The judg-

ment of the city court in refusing to declare a mistrial, said the appellate court, could not be held to be such an abuse of discretion as would necessitate setting the verdict and judgment aside. While the evidence in this case, in the opinion of the appellate court, did not demand a verdict in favor of the appellee, there was an abundance of testimony by which it was authorized. The amount of the verdict was not considered to be excessive.

Compensation Award Not Evidence in Malpractice Suit

(Powell v. Galloway (Ky.), 16 S. W. (2d) 489; Powell v. Galloway (Ky.), 16 S. W. (2d) 492)

Galloway sued the appellant for alleged malpractice in the treatment of a fractured forearm. The circuit court gave judgment for Galloway for $3,000, which judgment was affirmed by the court of appeals of Kentucky.

November 18, Galloway broke one of the bones of his right forearm while cranking an automobile and employed the appellant to treat the injury. In April, another physician operated on the arm and removed a bony substance or knot from the wrist. Galloway claimed that, by reason of the appellant's negligent treatment, his hand and fingers were stiff, deformed and permanently impaired.

Witnesses testified that the appellant did not properly set the arm in the splint; that the knot on the wrist indicated the displacement of a fragment; that the fracture was not properly reduced; that the arm had been held in a malposition, and that the abnormal result was caused thereby. On behalf of the appellant, the testimony was positive and direct that the bad result was not caused by any omission or fault of his. The credibility of the witnesses, said the appellate court, and the finding of facts from conflicting evidence are essentially for the jury to determine. The court was unable to say that the verdict was palpably against the evidence. The appellant complained of the refusal of the circuit court to permit him to show the amount of compensation Galloway had collected from his employer, to reduce the amount of monetary damages claimed in the present action. The employer, the court said, paid compensation only for injuries sustained by the employee while cranking the automobile, and was not liable for any subsequent damages that may have been caused by the neglect of a physician. Since Galloway did not, and could not, recover compensation from his employer for injuries resulting to him from any negligence of his physician, the amount of compensation paid by the employer had no bearing on the present case. Under the circumstances, the circuit court did not err in excluding the evidence of the amount so paid.

The introduction in evidence of roentgenograms of the injured arm, taken a week before the trial, and the exhibition of the injured hand to the jury were objected to by the appellant because the condition of the hand had been changed by the operation so that its appearance at the time of the trial, or a week before the trial, did not truly reflect the conditions left by the appellant when his connection with the case was terminated. It was proper, the court said, for the jury to see the hand in the condition in which it was at that time, and to hear the evidence as to the cause of that condition. The changes, if any, in the conditions of the injured arm at the various periods involved were subject to description and explanation of the witnesses. The roentgenograms, having been properly authenticated, were admissible for like reasons.

The appellant contended, finally, that the circuit court should have granted a new trial by reason of the misconduct of one of the jurors. Although the juror may have formed an adverse opinion of a particular physician, the court said, there was nothing to indicate that he was prejudiced against the appellant or against the medical profession in general. The circuit court did not abuse a sound discretion in refusing to grant a new trial.

In a subsequent proceeding instituted by the appellant to secure a new trial on the ground of fraud and newly discovered evidence, the court of appeals of Kentucky found the evidence in sharp conflict and not of such certain and unerring character as to have been decisive as to the issue involved. The judgment of the circuit court, based on conflicting evidence, that a new trial should not be granted was affirmed by the court of appeals.

Insurance, Accident: Infection by Wiping Nose an Accidental Bodily Injury.—While the insured had a cold, he rubbed his nose with his hand and handkerchief and picked at it with his hand. He had a pimple or sore on his nose, which he rubbed and squeezed with his hand and handkerchief. His nose was raw and chafed and had blisters and pimples on it. It was shown that germs were always present on the hands and nose of the insured and that they were present on his handkerchief. He died from a carbuncular infection of the nose, which spread over his face and head. The insurer offered no evidence. It contended that the fatal infection resulted from the diseased condition of the deceased, or that such diseased condition cooperated in causing his death. Therefore, the insurer said, it was not liable under the terms of the policy, which insured only against blood poisoning resulting directly from bodily injuries through accidental means, independent and exclusive of all other causes. The trial court peremptorily instructed the jury to find in favor of the insurer, but this, said the court of civil appeals of Texas, Galveston, was error. The jury might reasonably have found from the evidence that the fatal carbuncular infection resulted from an external force, to wit, a rubbing and picking of the nose, and not from natural causes. Whether it was the result of an external force or of a preexisting disease was a question for the jury.—*Garrett v. International Travelers' Assn. et al. (Texas), 14 S. W. (2d) 944.*

Wills: Testamentary Capacity, Criteria of.—The probate of the decedent's will, executed May 23, 1925, was contested. The Surrogate's Court, Albany County, N. Y., he'd that the contestants failed to prove the decedent was incapable of making a will on the day it was made. It is elementary that a person making a will must have sufficient mental capacity to comprehend the nature and condition and disposition of his property and his relation to the persons who were or might have been the natural objects of his bounty. It is not the medical soundness of mind that governs, but testamentary capacity and soundness of mind as defined by law. That the decedent was old and enfeebled did not necessarily make her incompetent. The fact that she was committed to an institution for the insane a year after she executed the will does not justify a finding that she did not possess legal mental capacity at the time she executed the will. The evidence presented by the physicians who examined her a year after the execution of the will that at that time she was suffering from senile dementia, resulting from arteriosclerosis, does not warrant a finding that senile dementia existed in May, 1925. That arteriosclerosis is a progressive disease and might have existed over a period of four or five years prior to the commitment of the decedent to a hospital does not constitute sufficient proof of want of testamentary capacity.—*In Re Whitmarsh's Estate (N. Y.), 234 N. Y. S. 505.*

Evidence: Testimony Taken at Coroner's Inquest Not to be Read at Trial.—A prosecuting attorney or any attorney assisting him may make a brief statement of the evidence on which the prosecution relies, but there is nothing in the laws of Arkansas authorizing the reading, in aid of that statement, of testimony theretofore taken. The reading of such testimony is bad practice and should not be countenanced. It was error to allow the evidence taken at the coroner's inquest to be read as a part of the statement of the special prosecuting counsel to the jury, in the course of the trial.—*Gehl v. State (Ark.), 15 S. W. (2d) 396.*

Society Proceedings

COMING MEETINGS

American College of Physicians, Minneapolis, February 10-17. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Heart Association, New York, February 3. Dr. I. C. Riggin, 370 Seventh Avenue, New York, Executive Secretary.
American Orthopsychiatric Association, New York, February 21-22. Dr. George S. Stevenson, 370 Seventh Avenue, New York, Secretary.
American Society for Experimental Pathology, Chicago, March 26-29. Dr. Carl V. Weller, University of Michigan, Ann Arbor, Secretary.
American Society of Biological Chemistry, Chicago, March 26-29. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Sec'y.
Pacific Coast Surgical Association, Del Monte, Calif., February 7-8. Dr. E. L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Surgery, New York

7: 747-898 (Dec.) 1929

Hydronephrosis. Dr. von Lichtenberg, Berlin, Germany.—p. 747.
Indirect Inguinal Hernia. A. H. Iason, New York.—p. 757.
Value of Enterostomy in Intestinal Surgery. J. L. DeCourcy, Cincinnati.—p. 769.
Medicosurgical Problems of Gallbladder Disease. R. M. Harbin, Rome, Ga.—p. 774.
Comparative Safety and Effectiveness of Relief Measures During Labor. H. W. Schoeneck, Syracuse, N. Y.—p. 778.
Use of Catheter in Retention. L. R. Kaufman, New York.—p. 785.
Prostatectomy. A. B. Cecil, Los Angeles.—p. 795.
Surgical Problems in Jaundiced Patients. M. K. Smith, New York.—p. 799.
Mesenteric Tumors. W. H. Fisher, Toledo, Ohio.—p. 803.
Bridging of Osseous Defects of Forehead. L. V. Rush, J. H. Rush and H. L. Rush, Meridian, Miss.—p. 805.
Painful Feet. R. E. Humphries, New York, and G. H. Taylor, Maplewood, N. J.—p. 808.
Intestinal Obstruction. W. O. Sweek and J. H. Patterson, Phoenix, Ariz.—p. 813.
Electrosurgery in Treatment of Uterine Cervical Lesions. F. M. Mikels, Los Angeles.—p. 818.
*Erythroblasts and Myelocytes in Traumatic Effusions of Knee Joint. D. H. Kling, Los Angeles.—p. 824.
Electrothermic Surgery in Management of Carcinomas of Lip. J. T. Stevens, Montclair, N. J.—p. 831.
Congenital Absence of Kidney. S. J. Pearlman, New York.—p. 836.
Solitary Cystic Fibroma of Cauda Equina, Calcification of Intervertebral Disk and Congenital Malformation of Vertebra. R. J. Dittrich, Wichita, Kan.—p. 840.
Ovarian Headache. M. Kahn, Los Angeles.—p. 846.
Multiple Hydatic Cyst of Liver. R. Smith, Los Angeles.—p. 847.
Tuberculous Stricture of Urethra. P. W. Aschner, New York.—p. 850.
Congenital Cyst of Urachus. S. Lubash, New York.—p. 851.
Apropos Gastrectomy. H. P. Epstein, Newark, N. J.—p. 853.
Intermuscular Lipomas. M. Behrend, Philadelphia.—p. 857.
Intussusception. W. L. Heeve and R. Goldberg, New York.—p. 861.
Xanthoma of Tendon Sheath. A. D. Kurtz, Philadelphia.—p. 862.
Richter's Hernia. A. H. Bissell, Stamford, Conn.—p. 864.
Supracondylar Fracture of Humerus. G. T. Tyler, Jr., Greenville, S. C.—p. 867.

Erythroblasts and Myelocytes in Traumatic Effusions of Knee Joint.—Kling states that, in case of intra-articular fracture, elements of the bone marrow will reach the joint cavity. The red marrow of the epiphyses contains besides other cells erythroblasts and myelocytes. These two elements, demonstrated in a joint fluid, will therefore settle the diagnosis of intra-articular fracture. Consequently, one can complete the differential diagnosis of injuries to the knee joint from the aspirated effusion: slight injuries when fat is absent, severe injuries when fat is found and intra-articular fractures when elements of bone marrow are seen besides the fat.

Annals of Internal Medicine, Ann Arbor, Mich.

3: 521-650 (Dec.) 1929

Mucous Colitis. J. Friedenwald, M. Feldman and L. J. Rosenthal, Baltimore.—p. 521.
Principles Underlying Calculation of Flexible Diabetic and Ketogenic Diets. R. W. Keeton and H. Mackenzie, Chicago.—p. 546.
*Diagnosis of Pancreatic Disturbances: I. Methods of Functional Diagnosis. C. W. McClure, Boston.—p. 557.
Treatment of Acute Asphyxia. C. K. Drinker, Boston.—p. 569.
Use of Sodium Salt of Dehydrocholeic Acid (Decholin) as Choleretic. E. G. Wakefield, H. P. Powelson and C. S. McVicar, Rochester, Minn.—p. 572.
*Fatal Purpura Complicating Chronic Interstitial Nephritis. O. Bergḧausen, Cincinnati.—p. 578.
New Case of Syphilitic Tumor of Stomach Cured by Antisyphilitic Treatment. M. Einhorn, New York.—p. 586.
*Treatment of Urticaria and Angioneurotic Edema. G. T. Brown, Washington, D. C.—p. 591.
Obesity: Procedure, Classification, Treatment and Results in 151 Cases Studied During Past Six Years; Endocrinopathic Origin. J. Eidelsberg, New York.—p. 604.
Pregnancy Complicated by Cardiac Decompensation and Anemia Gravidarum. S. R. Meaker and F. Bongiorno, Boston.—p. 608.
Undulant Fever: Five Cases. S. U. Marietta, San Francisco.—p. 611.

Diagnosis of Pancreatic Disturbances.—McClure concludes his review by stating that most tests designed to estimate the activity of the pancreas are based on erroneous physical and physicochemical conditions. These conditions are so erroneous as to render the tests almost valueless. The nuclear test and certain metabolic examinations are of value in demonstrating far advanced disease of the pancreas. The presence of glycosuria and a positive Cammidge pancreatic reaction in the urine are of varying degrees of diagnostic aid. McClure and his co-workers have devised means for accurately demonstrating pancreatic dysfunction of both mild and advanced degrees.

Fatal Purpura Complicating Chronic Interstitial Nephritis.—Berghausen relates the case of a woman, aged 37, who died of simple symptomatic purpura and uremia. The necropsy disclosed the presence of markedly contracted kidneys weighing only 91 Gm. The blood platelet count, the bleeding time and the clotting time were within normal limits. Renal complications had been present over a period of two years, but the purpuric symptoms had been either overlooked or manifested themselves only by increased menstrual flow, until a short time before her death.

Treatment of Urticaria and Angioneurotic Edema.—Brown presents the results of his study of 160 cases. He says that isolated attacks of acute urticaria are usually due to some dietary indiscretion and are best treated by the prompt administration of a purgative. In urticaria or angioneurotic edema, when the symptoms are at all severe, the emergency treatment *par excellence* is epinephrine hypodermically. From 8 to 16 minims (0.5 to 1 cc.) of a 1:1,000 solution of epinephrine hydrochloride should be injected, and should be repeated if necessary. Edema of the glottis may cause death. Therefore, in angioneurotic edema, when the edematous swelling seems to be affecting the throat or larynx, epinephrine should be administered without delay, and in sufficient dosage. In chronic urticaria, epinephrine has certain disadvantages in that it must be administered hypodermically to be effective, and the relief is of short duration. The itching in urticaria, which is frequently intense, may be relieved somewhat by cold baths, either plain or with soda; sponging the skin with alcohol or a saturated solution of menthol in alcohol; calamine lotion containing 1 per cent of phenol, and ointments containing menthol or phenol. Ice compresses may be applied to the localized swellings of angioneurotic edema. Mixed bromides, 15 grains (1 Gm.) at a dose, should be prescribed, to be taken at bedtime when there is loss of sleep from itching, and two or three times a day when there is considerable nervousness. Ephedrine is the most valuable oral drug for the symptomatic relief of urticaria and other allergic conditions. Ephedrine hydrochloride is preferable to ephedrine sulphate, as it contains about 5 per cent more of the alkaloid. Ephedrine hydrochloride for oral administration may be prescribed in capsules, tablets or a 3 per cent aqueous solution. The adult dose is from ⅜ to ¾ grain (12 to 24 minims of the 3 per cent solution), the average dose being ½ grain (16 minims of the 3 per cent solution). The dose for children is from ¼ to ½ grain (8 to 16 minims of the 3 per cent solution), with an average dose of ⅜ grain (12 minims of the 3 per cent solution). In urticaria, as in other allergic conditions, when the exact cause cannot be found and removed, some form of nonspecific therapy should be resorted to. Brown recommends concentrated peptone solution. A sterile 33⅓ per cent peptone solution should be prepared, after the method of Schiff, containing equal parts of peptone siccum, glycerin and water. Prior to treatment, the patient should be tested cutaneously with the peptone solution, as, if sensitization should exist, it would be extremely dangerous to inject the concentrated solution. The 33⅓ per cent solution is given undiluted, the initial dose being 1 minim injected intradermally, the second dose 2 minims intradermally, the third dose 3 minims either intradermally or subcutaneously. For subsequent treatments the dose is usually increased by 1 minim each time, depending on the reaction in the individual case, until a maximum dose of 16 minims (1 cc.)

is reached, and then continued at this maximum dose. All doses larger than 3 minims should be given subcutaneously. If it is preferred, the 1 and 2 minim intradermal doses may be omitted and the treatments started with 3 minims subcutaneously. The peptone injections are given once or twice a week, usually the latter. Desiccated peptone (peptone siccum) taken orally from one-half to one hour before each meal tends to desensitize temporarily against the various food proteins. It should be prescribed in capsules containing 7½ grains (0.5 Gm.), one capsule to be taken from one-half to one hour before each meal. Children are given 5 grain (0.3 Gm.) capsules, to be taken in the same way. In putting up peptone capsules, the capsules should be dusted inside and out with starch and they should be dispensed in a tightly capped container.

Archives of Dermatol. & Syphilology, Chicago

21: 1-162 (Jan.) 1930

*Chemistry of Blood in Diseases of Skin. J. F. Schamberg and H. Brown, Philadelphia.—p. 1.
*Pityriasis Folliculorum (Demodex). S. Ayres, Jr., Los Angeles.—p. 19.
*Tryparsamide in Acute Pemphigus. J. Grindon, St. Louis.—p. 25.
Question of Arsphenamine-Resistant Syphilis. J. E. Moore and H. M. Robinson, Baltimore.—p. 32.
*Dermatitis from Picric Acid Solution and Butesin Picrate Ointment. N. R. Jackson, Austin, Texas.—p. 40.
Purpura Annularis Telangiectodes. S. C. Way, San Francisco.—p. 42.
*Localized Solid Edema of Extremities in Association with Exophthalmic Goiter. P. A. O'Leary, Rochester, Minn.—p. 57.
Dyskeratosis Congenita with Pigmentation, Dystrophia Unguis and Leukokeratosis Oris. H. N. Cole, J. E. Rauschkolb and J. Toomey, Cleveland.—p. 71.
*Skin in Diabetic Patients. A. M. Greenwood and E. M. Rockwood, Boston.—p. 96.
Alfred Hardy, 1811-1893. B. B. Beeson, Chicago.—p. 108.

Chemical Studies of Blood in Diseases of Skin.—In eczema and in pruritus, particularly of the generalized type, Schamberg and Brown found a perceptibly higher percentage of patients with an excess of nonprotein nitrogen, urea nitrogen and uric acid than in other dermatoses.

Pityriasis Folliculorum (Demodex). — Eleven cases observed by Ayres during the past four months presented a fairly uniform symptom-complex, which is tentatively designated as pityriasis folliculorum (*Demodex*). All these patients were women, and all but two used soap on the face infrequently or not at all. The symptom-complex consists in a sensation of burning or irritation of the face, together with dryness and a characteristic roughness due to the accumulation of a white, frosted-looking scaliness about the base of the lanugo hair giving rise to a stippled or nutmeg-grater-like appearance. In all patients in whom the subsequent course could be followed, the vigorous use of soap and water and of a strong parasiticide ointment was followed by clinical improvement and by a diminution in the number of parasites found on microscopic examination.

Tryparsamide in Acute Pemphigus.—Four cases of acute pemphigus are reported by Grindon which were successfully treated with tryparsamide and a blood coagulant; also two cases of chronic pemphigus in which the same treatment was used, with one success and one failure. Three of the four patients with acute pemphigus showed prompt and rapid improvement, with apparent cure. In the fourth, improvement was delayed, and the lesions did not completely disappear. There was a remission, which on renewal of the treatment again showed improvement falling just short of complete clinical cure.

Dermatitis from Trinitrophenol Solution and Butesin Picrate Ointment.—Jackson reports five cases. In four of these the application of a trinitrophenol solution caused an erythematous, weeping, vesicular eruption. In the fifth case, application of butesin picrate ointment to hemorrhoids caused a similar dermatitis. In all cases a cure was effected by the use of wet dressings of normal aluminum acetate solution.

Localized Solid Edema of Extremities in Association with Exophthalmic Goiter.—O'Leary reports eight cases in which nonpitting, edematous, tawny plaques developed on the lower extremities in association with hyperthyroidism. The features common to all cases were: acute hyperthyroidism of moderately severe degree; long standing edema of the extremities of cardiac origin, and tawny plaques that were not influenced by the therapeutic measures which brought about improvement in the symptoms of hyperthyroidism. The microscopic picture is that of a marked degree of myxedema, although the clinical picture in each case at the time of the development of the plaques was one of acute hyperthyroidism.

Skin in Diabetic Patients.—In view of the probable increased susceptibility to infection of the feet generally considered to be present in diabetic patients, Greenwood and Rockwood have attempted to ascertain the bacterial and fungous flora of the interdigital spaces of the feet in 100 patients, whether or not they complained of or gave a history of disease of the skin in this location. Scales and bits of skin were taken from the interdigital spaces, collected in sterile containers, examined microscopically and later planted on Sabouraud medium. Seventy patients gave clinical evidence of fungous infection. The average blood sugar content of the group was 205 mg. per hundred cubic centimeters; that in cases in which the results of examination were positive, 200 mg. per hundred cubic centimeters, and that in the cases in which the results of examination were negative, 210 mg. per hundred cubic centimeters. Fifty-seven, or 71 per cent, of the seventy cases in which the results of examination were clinically positive showed positive results on microscopic study. In twenty-four cases in the series, specimens of opaque and deformed nails were examined; 70 per cent of these on microscopic examination showed actively growing mycelium comparable in all respects except one to the mycelium found in scales. This difference consisted in the fact that some of these fungi showed the development of conidia, chlamydospores and fuseaux in the nails.

Archives of Ophthalmology, Chicago

2: 635-771 (Dec.) 1929

Crystalline Deposits in Vitreous. C. A. Clapp, Baltimore.—p. 635.
Retinoblastoma. F. H. Verhoeff, Boston.—p. 643.
Muscle Transplantation for Paralytic Strabismus. S. R. Gifford, Chicago.—p. 651.
Keratoconus: Etiology and Treatment. A. Knapp, New York.—p. 658.
Keratitis Exfoliativa Complicating Dermatitis Exfoliativa (Arsphenamine). D. B. Kirby, New York.—p. 661.
Rôle of Calcium in Essential Glaucoma. J. I. Gouterman, Philadelphia.—p. 670.
Angioma of Iris. F. H. Rodin, San Francisco.—p. 679.
Akinesia During Extraction of Cataract. R. E. Wright, Madras, India.—p. 691.
Regeneration of Cornea. C. W. Rucker, Minneapolis.—p. 692.
Aniridia Occurring in Three Generations. L. J. Croll, Detroit.—p. 699.
Ankyloblepharon Filiforme Adnatum. H. V. Judge, W. C. Mott and J. A. C. Gabriels, Albany, N. Y.—p. 702.
Central Visual Pathway. P. C. Kronfeld, Chicago.—p. 709.

Canadian Public Health Journal, Toronto

20: 583-636 (Dec.) 1929

Major Diseases of Adult Life as Problem of Preventive Medicine. H. B. Anderson, Toronto.—p. 583.
Convalescent Serum in Prevention of Measles. W. Warwick, St. John, New Brunswick.—p. 597.
Cancer and Tuberculosis. J. W. McIntosh, Burnaby, B. C.—p. 600.
Venereal Diseases Prevention Act of Ontario. W. J. Bell, Toronto.—p. 610.
Relative Frequency of Tuberculosis of Bovine Origin in Europe and America. J. Miller, Kingston.—p. 616.

Florida M. Assn. Journal, Jacksonville

16: 253-286 (Dec.) 1929

Perinephritic and Paranephritic Abscess. J. L. Estes, Tampa.—p. 253.
Pyelitis in Infancy. D. D. Martin, Tampa.—p. 256.
Some Tonsil Problems. L. C. Ingram, Orlando.—p. 258.
Treatment of Compound Fractures. C. Mabry, Jacksonville.—p. 262.
Myxosarcoma. R. F. Godard, Quincy.—p. 263.
Bilateral Retinal Detachment Complicating Toxemia of Pregnancy: Case. S. Richardson, Jacksonville.—p. 266.
Hysterectomy and Removal of Fetus Afterward. J. S. Turberville, Century.—p. 268.

New England J. of Medicine, Boston

201: 1229-1272 (Dec. 19) 1929

Medical and Dental Aspects of Focal Infection. H. C. Bumpus, Jr., Rochester, Minn.—p. 1229.
Surgeon and Environment: Historical Sketch. F. B. Lund, Boston.—p. 1233.
Psychiatry's Part in Proper Care and Treatment of Prisoners. A. W. Stearns, Boston.—p. 1238.
Cancer of Breast. R. B. Greenough and E. M. Daland, Boston.—p. 1240.
Bone Sarcoma. C. C. Simmons, Boston.—p. 1242.
Progress in Laryngology. G. Berry and L. A. Schall, Boston.—p. 1244.

201: 1273-1324 (Dec. 26) 1929

Malignant Disease of Genito-Urinary System. R. C. Graves, Boston.—p. 1273.
Carcinoma of Genito-Urinary Tract. G. G. Smith, Boston.—p. 1277.
Malignant Disease of Genito-Urinary Organs: Tumors of Prostate. W. C. Quinby, Boston.—p. 1280.
Diagnosis and Treatment of Malignant Lymphoma. H. Jackson, Jr., Chestnut Hill, Mass.—p. 1284.
Irradiation Treatment of Malignancy. R. Dresser, Worcester, Mass.—p. 1285.
Treatment of Pain in Cancer. J. S. Hodgson, Boston.—p. 1287.
Modern Cancer Therapy: A Résumé. R. B. Greenough, Boston.—p. 1287.
Meningioma with Bruit: Four Cases. F. Schreiber, Detroit.—p. 1290.
Workmen's Compensation Under Vermont Law. C. White, Montpelier, Vt.—p. 1293.
Nostrum and Public Health. A. J. Cramp, Chicago.—p. 1297.

New Jersey M. Soc. Journal, Orange

26: 805-910 (Dec.) 1929

Angina Pectoris. H. M. Ewing, Montclair.—p. 805.
Problem and Importance of Weight in Relation to General Health. S. R. Miller, Baltimore.—p. 808.
Hemochromatosis (Bronzed Diabetes): Case. M. Vinciguerra and A. R. Casilli, Elizabeth.—p. 817.
Relation of Mental Hygiene Clinics to General Hospitals. H. A. Cotton, Trenton.—p. 820.
Place of Mental Hygiene Clinic for Children in Community. J. S. Plant, Newark.—p. 823.
Congenital Syphilis. J. Heilbrunn, Jersey City.—p. 829.
Phaco-Eresis. I. Hartshorne, New York.—p. 834.
Simple Operation for Extraction of Cataract. E. J. Marsh, Paterson.—p. 839.
Combined Extraction. L. W. Hughes, Newark.—p. 841.
Preliminary Iridectomy. C. H. Schlichter, Elizabeth.—p. 844.

Public Health Reports, Washington, D. C.

44: 3095-3167 (Dec. 20) 1929

Treatment of Leprosy in Hawaii. N. E. Wayson.—p. 3095.
Legal Phases of Milk Control. J. A. Tobey.—p. 3110.

Southern Medical Journal, Birmingham, Ala.

22: 1049-1134 (Dec.) 1929

*Malta Fever in the United States. C. W. Wainwright, Baltimore.—p. 1049.
Characteristics of Medical Student. W. deB. MacNider, Chapel Hill, N. C.—p. 1054.
What Constitutes a Desirable Medical Teacher? J. H. Musser, New Orleans.—p. 1058.
What Constitutes a Desirable Medical Teacher? L. F. Barker, Baltimore.—p. 1060.
Neoarsphenamine in Treatment of Lichen Planus. L. W. Lord and J. E. Kemp, Baltimore.—p. 1064.
Commentary on Recurrence in Lichen Planus. I. R. Pels and L. Ginsburg, Baltimore.—p. 1066.
*Clinical Comparison of Complement-Fixation and Flocculation Tests. L. C. Todd, Charlotte, N. C.—p. 1070.
Thoracic Sequelae of Pneumonia. V. S. Caviness, Raleigh, N. C.—p. 1075.
Unusual Arthus Phenomena. A. T. Mayo and J. R. Eggleston, University, Va.—p. 1077.
*Diabetes in Tuberculous. S. L. Crow, Asheville, N. C.—p. 1079.
Hypothyroidism. L. Rice, San Antonio, Texas.—p. 1083.
Surgical Management of Bilateral Congenital Occlusion of Posterior Nares: Case. V. K. Hart and C. N. Peeler, Charlotte, N. C.—p. 1087.
Vesicovaginal Fistula. M. Y. Dabney, Birmingham, Ala.—p. 1089.
Facts and Fancies Regarding Diet. D. VanderHoof, Richmond, Va.—p. 1094.
Our Inheritance of Fallacy from Chapter XIV of Oviedo's Historia General y Natural. C. S. Butler and V. Hernandez, Washington, D. C.—p. 1098.
Newer Knowledge of Heart Disease: V. Symptom and Signs. T. R. Harrison, Nashville, Tenn.—p. 1102.

Malta Fever in the United States.—An analysis of seventy-six cases of Malta fever occurring in the United States is made by Wainwright, in which twenty-five are melitensis infections and fifty-one are abortus infections. The melitensis infections occurred in a rather limited area, the Southwest, where goats are raised. The abortus infections were generally distributed throughout the United States. Occupation was without especial significance except in the melitensis infections, in which there was a history of close contact with goats. Insidious onset was the rule in both melitensis and abortus infections. The physical observations were in no way characteristic. Gastrointestinal symptoms were frequent in both infections. Constipation was much more frequent in the melitensis cases. Orchitis was a frequent complication in the melitensis cases. The organism was recovered from both the blood and the urine more readily in the melitensis infections. Leukopenia or normal white cell counts were the rule, and there was frequently a lymphocytosis. The melitensis infections were generally more typical and more severe than the abortus infections.

Clinical Comparison of Complement-Fixation and Flocculation Tests.—Comparative examinations by the complement-fixation and precipitation-flocculation tests were made by Todd on 7,266 patients, with an average agreement between the two systems of 98.06 per cent. A clinical comparison between the Kolmer-Wassermann, the Kline and the Hinton tests in the examination of 728 patients showed that there was an agreement in all three tests of 96.43 per cent. There was an agreement between the Kline and the Hinton tests of 99.45 per cent. There were no proved false positive reactions. The Kline antigen has proved superior in several important phases of diagnosis to the Kahn antigen. The Hinton glycerin-cholesterol precipitation reaction makes a superior check test for the complement-fixation test or for one of the other precipitation-flocculation tests. If the complement-fixation test is to be discarded, the Kline antigen in the Kahn tube test, checked by the Hinton test, makes a promisingly satisfactory serologic examination for syphilis.

Diabetes in Tuberculous.—Six cases are reported by Crow, who feels that tuberculosis is probably no more frequent in diabetic than in nondiabetic patients. When these two diseases coexist, tuberculosis is usually the complication. Best results are obtained when diabetes is given first importance; therefore, maintenance of a normal glycemia is the ideal goal of treatment. As a result of the better management of diabetic patients, the prognosis of cases complicated with tuberculosis has been greatly improved.

Tennessee State M. Assn. Journal, Nashville

22: 271-306 (Dec.) 1929

Essential Hypertension. O. N. Bryan, Nashville.—p. 271.
Fracture of Capitellum. R. F. Patterson, Knoxville.—p. 277.
Some Infections of Throat. W. G. Kennon, Nashville.—p. 278.
Bacteriophage: Another Specific Therapeutic Agent. J. A. McIntosh, Memphis.—p. 283.
Endometriosis. H. M. Tigert, Nashville.—p. 287.

Texas State J. of Medicine, Fort Worth

25: 503-576 (Dec.) 1929

Cervix Uteri. E. Dunlap, Dallas.—p. 510.
Focal Infection in Eclampsia and Further Study of Tyramine as Etiologic Factor of Toxemia. R. A. Johnston, H. W. Johnson and H. O. Nicholas, Houston.—p. 515.
Hydatidiform Mole. E. T. Morris, San Benito.—p. 521.
Focal Infection from Internist's Viewpoint. R. B. McBride, Dallas.—p. 523.
Dental Root Infection and Cysts, Factors in Systemic Disease. J. T. Edwards, Fort Worth.—p. 525.
Otolaryngologist Viewpoint of Focal Infection. S. Israel, Houston.—p. 528.
Focal Infection of New-Born as Nursery Problem. C. R. Hannah, Dallas.—p. 530.
Focal Infection of Dental Origin. W. H. Scherer, Houston.—p. 532.
Etiology, Pathology, Prognosis and Treatment of Carbuncles: Cases. C. H. Harris and G. R. Enloe, Fort Worth.—p. 537.

United States Vet. Bur. M. Bull., Washington, D. C.

5: 925-1043 (Dec.) 1929

Personality Change in Course of General Medical and Surgical Disorders. G. E. Meyers.—p. 925.
Treatment of Syphilis. P. P. Barker and H. A. Callis.—p. 936.
Organization and Procedure in United States Veterans' Diagnostic Center. W. B. Swackhamer.—p. 947.
Psychologic Content in Convulsive Syndrome. I. H. MacKinnon.—p. 951.
Lipiodol in Treatment of Bronchiectasis. E. Mattice.—p. 958.
Treatment of Pleuritic Pains by Galvanism. C. Bates.—p. 961.
Tuberculosis of Pharynx, Tonsils, Faucial Pillars, Velum Palati, and Uvula. A. M. Wigglesworth.—p. 964.
Neuropsychiatric Examinations. W. C. Liefert and H. J. Forman, Jr.—p. 966.
Clinical Significance of Pyuria and Albuminuria in Psychotic Patients. H. Hansen.—p. 974.
Two Modifications of Benedict's Test-Tube Method for Quantitative Determination of Urinary Sugar. R. G. Myers.—p. 979.
Diet and Disease. E. P. Dekle.—p. 983.
Dental Aid in Basal Metabolism Test. D. S. Bartlett.—p. 987.
Neurofibroma (von Recklinghausen's Disease) Causing Pressure on Spinal Cord. O. B. Mallow and C. C. Burton.—p. 989.
Bullet in Pericardial Sac. R. P. Hentz.—p. 992.
Malignancy of Larynx. R. C. Buck.—p. 993.
Pyonephrosis with Enormous Enlargement of Right Kidney. G. L. Johnson.—p. 995.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Dis. in Childhood, London

4: 347-398 (Dec.) 1929

*Obstruction of Esophagus in Childhood. W. Sheldon and A. G. Ogilvie. —p. 347.
*Remote Prognosis of Pneumonia. H. P. Jameson.—p. 365.
Coarctation of Aorta: Case. A. P. Thomson and F. W. M. Lamb.—p. 377.
Hereditary Hypertelorism Without Mental Deficiency. T. M. Montford. —p. 381.
Familial Brachydactyly. R. Marshall.—p. 385.
*Metabolic Study of Alkaptonuric Infant. F. Braid and E. M. Hickmans. —p. 389.

Obstruction of Esophagus in Childhood.—Ten examples of congenital narrowing of the esophagus at the level of the seventh thoracic vertebra are reported by Sheldon and Ogilvie, and the clinical picture of this condition is described. Treatment by a persistent fluid diet is recommended, the passage of bougies being likely to do more harm than good. Two cases of congenital stenosis at the level of the diaphragm are also recorded. The question of the occurrence of spasm of the cardia and achalasia of the cardia in infancy and childhood is discussed.

Remote Prognosis of Pneumonia.—Jameson suggests that emphasis is to be placed on the amount, duration and recurrence of the interstitial inflammation, in estimating the remote prognosis of pneumonia. Second or third attacks and the occurrence or persistence of upper respiratory infections are particularly liable to cripple a child who has once suffered from this disease.

Metabolic Study of Alkaptonuric Infant.—A case of alkaptonuria in an infant has been studied by Braid and Hickmans. In health, on a purely milk diet varied quantitatively, the homogentisic acid to nitrogen ratio is 55-60 : 100. This is similar to the ratio found by Gross and Allard, whose patient, an adult, had a large milk diet. It supports the "maximal error" theory. When the nitrogen retention fell, the homogentisic acid to nitrogen ratio fell to 34 : 100. After thirty hours' starvation, homogentisic acid disappeared from the urine. Acetone did not take its place. The output of homogentisic acid was not diminished by the administration of potassium iodide. There is no evidence to show that homogentisic acid is other than an intermediate product of normal metabolism. The nitrogen partition in the urine differs from the normal. Most notable is the low urea nitrogen. The acidity of the urine was slightly higher than normal. The total nitrogen absorption and retention was normal.

British Medical Journal, London

2: 1041-1094 (Dec. 7) 1929

Diagnosis and Treatment of Functional Nervous Disorder. T. A. Ross. —p. 1041.
Constipation: Nature and Diagnosis. G. Evans.—p. 1044.
Position of Surgery in Treatment of Gastric and Duodenal Ulcers. H. H. Rayner.—p. 1048.
*Prophylactic Treatment of Patients Who Have Had Albuminuria in Previous Pregnancy. L. C. Rivett.—p. 1050.
Gas-Oxygen in Midwifery. H. E. G. Boyle.—p. 1051.
*Drug Treatment of Spasmodic Rhinorrhea. W. M. Mollison.—p. 1052.
Pneumopyopericardium: Radiologic Diagnosis. J. F. Brailsford.—p. 1053.
Pancreatic Calculi: Case. S. N. Sennett.—p. 1054.
Bony Plaques Developing in Skin: Case. I. H. Lloyd-Williams.—p. 1055.
Large Lung Abscess with Gangrene. J. L. Livingstone.—p. 1055.
Bimanual Method of Locating Stone in Lower End of Ureter. J. Clay. —p. 1056.
Fracture of Ribs Caused by Coughing. B. T. Halliwell.—p. 1056.
Congenital Occlusion of Small Intestine. C. B. Pasley.—p. 1056.
Extreme Cardiac Edema with Recovery. N. J. Nicholson.—p. 1056.

Prophylactic Treatment of Patients Who Have Had Albuminuria in Previous Pregnancy.—The essential feature of the treatment described by Rivett is maintaining the reaction of the urine throughout the whole of pregnancy at a minimum alkalinity of p_H 7.7. In order to achieve this, alkalis are given by the mouth. To guard against overdosage, the bicarbonate content of the blood plasma is estimated at intervals, especially if any change in the original dose is indicated. In normal non-pregnant women the average plasma bicarbonate is about 0.030 molar concentration. In 85 per cent of pregnant women there is considerable reduction, an average being about 0.0247. The dose that is usually both safe and effective is about 400 grains (26 Gm.) a day of equal parts of sodium bicarbonate and potassium citrate. This may have to be varied according to the reaction of the urine and the bicarbonate content of the plasma. In some cases as much as 780 grains (50 Gm.), more than an ounce and a half a day, has been given, while in others the dose may be reduced to a drachm or two (from 4 to 8 Gm.) a day. The patient is advised to diet. The protein intake is reduced by curtailing the amount of meat, milk and eggs. Milk is allowed in tea, coffee, and milk puddings, but is not allowed as a beverage. Eggs are not allowed in quantity, but one egg may be taken every other day. Meat of all sorts, and particularly red or greasy meat, is to be taken sparingly, and only every other day. White fish (not salmon or mackerel), vegetables and fruit may be taken freely. As regards general hygiene, special attention should be paid to the bowels, and a free action daily must be ensured. Fresh air and gentle exercise are of importance, and at the same time the patient must take plenty of rest and avoid all strenuous exertion.

Drug Treatment of Spasmodic Rhinorrhea.—Mollison reports good results from the administration of 15 grains (1 Gm.) of calcium lactate and 1/10 grain (6.5 mg.) of parathyroid extract; of thyroid extract, ½ grain (32 mg.) twice a day. In two cases quinine was given when hyperthyroidism was suspected.

2: 1095-1142 (Dec. 14) 1929

Abortion: Frequency and Importance. B. Whitehouse.—p. 1095.
Mastoid Disease Without Otorrhea. E. Watson-Williams.—p. 1099.
Paraffinoma of Rectum and Thigh. A. T. Bazin.—p. 1101.
*Arteriosclerosis in Coal Miners. D. E. Dickson and W. A. Dickson. —p. 1103.
*Diffuse Pneumococcal Peritonitis in a Boy. B. S. Simpson.—p. 1106.
Gradenigo's Syndrome Followed by Complete Recovery. E. B. Barnes and C. L. Gimblett.—p. 1107.
Hypertrophic Tumor of Skin of Leg Arising in Chronic Varicose Ulcer. W. D. Bedford.—p. 1108.
Sloughing of Uterus After Complete Inversion. A. Wood.—p. 1108.

Arteriosclerosis in Coal Miners.—The results of the examination of the circulatory system of 500 coal miners are analyzed by the Dicksons. It is shown that among coal miners of all ages there is an extraordinary prevalence of thickened arteries; the thickening is confined to the intima in the specimens examined. There is no associated rise in blood pressure. The only significant constant factors are (*a*) the inhalation of air of altered composition, especially the carbon dioxide content, and (*b*) the absence of daylight. It is suggested that the arteriosclerosis shown to exist in coal miners is the explanation of the peculiarity in their mortality rate.

Diffuse Pneumococcal Peritonitis in a Boy.—Simpson reports a case of diffuse pneumococcal peritonitis in which anti-gas-gangrene serum had a beneficial effect and the patient recovered from a disease in which the mortality is admittedly high. At the outset the history did not suggest a pneumococcal peritonitis. There was no rigor at the commencement of the acute illness, no diarrhea occurred, nor was there any herpes labialis. Exact preoperative diagnosis was not possible. Although the peritonitis was diffuse, it was clearly seen at operation that the infection was most intense in the ileocecal region. The administration of anti-gas-gangrene serum in its concentrated form proved beneficial when the establishment of a paralytic ileus had rendered the condition apparently hopeless.

Lancet, London

2: 1345-1398 (Dec. 28) 1929

Progress in Urology. A. Fullerton.—p. 1345.
*Bruit d'Airain (Coin Sound, Bell Sound). A. I. G. McLaughlin and A. J. Dix-Perkin.—p. 1351.
Assam's Malaria Problems and Their Solution. G. C. Ramsay.—p. 1356.
Pain in Relation to Duodenal Ulcer. D. MacLeod.—p. 1358.
Hemostasis in Mastoid Operation. N. Asherson.—p. 1359.
Emphysema Treated by Mechanotherapy. A. Kellgren-Cyriax.—p. 1360.

Bruit d'Airain (Coin Sound, Bell Sound).—The bruit d'airain, or the coin sound, can be heard only when a cavity containing air (a pneumothorax, a pulmonary cavity, and very rarely a pneumopericardium) is present in the thorax, McLaughlin and Dix-Perkin assert. The sign is not constantly obtained in pneumothorax, even when complete collapse of the lung exists. That is to say, the presence of the bruit d'airain is diagnostic of an air-containing cavity, but conversely the absence of the sign does not exclude the presence of such a cavity.

When the mediastinum is displaced the bruit d'airain gives an indication of the amount of displacement. For instance, in excessive displacement the sign can be found extending across the spinal column to the side of the uncollapsed lung. In ballooning of the pleura, the shape and extent of the bulge can be accurately marked out by means of the bruit d'airain. When a hydropneumothorax or pyopneumothorax is present, the sign is heard down to the level of the fluid, and in this way the amount and level of the fluid can be fairly accurately estimated. In this connection the bruit d'airain is of much more value than the percussion note, especially in those cases (usually pyopneumothoraces) in which a tympanitic or skodaic note is found over the effusion itself.

Archives de Médecine des Enfants, Paris

32: 701-786 (Dec.) 1929

*Relation Between Measles and Whooping Cough. W. Mikulowski.—p. 701.
Temporary Slow Pulse in Children During Convalescence from Typhus. A. Mezbourian.—p. 722.
*Vaccination of Children Against Typhoid and Paratyphoid. J. Hesse.—p. 729.

Relation Between Measles and Whooping Cough.—On the basis of a statistical study of the report of Debré and Joannon on the incidence of measles and whooping cough, Mikulowski points to the close epidemiologic and clinical relationship between the two diseases. The case reports of five children from Mikulowski's personal experience are given, which may be considered as typical examples in support of his theory.

Vaccination of Children Against Typhoid and Paratyphoid.—Hesse states that at the present time, as compared to prewar days, the occurrence of typhoid and paratyphoid is limited to women, youths and children. This may find explanation in the fact that in military service vaccination against these diseases is compulsory. From his personal experience and a review of the literature, Hesse considers it essential to vaccinate by subcutaneous inoculation all children more than 3 or 4 years of age and living in an environment where there is great danger of contagion. Antidiphtheritic vaccination may be performed at the same time. According to Hesse's experience, protection is afforded only for a period of two years; revaccination may be done by subcutaneous injection or through ingestion of the vaccine of Lumière or Besredka. Contraindications are tuberculosis or a weakened general condition. Subcutaneous vaccination should not be done in children with an acute infectious disease or in those having symptoms of cardiac or renal insufficiency or liver disorders.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

55: 1123-1142 (Nov. 2) 1929

Chronic Pancreatitis: Difficulty of Diagnosis. R. Grégoire.—p. 1124.
*Staphylococcus Septicopyemia: Case. Davioud.—p. 1127.
Fracture of Acetabulum with Displacement of Head of Femur. F. G. Diaz.—p. 1135.
*Suture with Buried Knot. A. Chalier.—p. 1137.

Staphylococcus Septicopyemia: Case.—In Davioud's patient, a woman, aged 45, an abscess containing staphylococci developed following a small injury on her foot caused by friction of the shoe. One week later an abscess was noted in her right breast. Increasing rise in temperature necessitated hospitalization. Within the next three weeks multiple abscesses were noted and staphylococci were eliminated by way of the urine. Vaccinotherapy with antistaphylococcic vaccine did not seem to be effective. After incision of a perinephric abscess and of one on the abdomen, on the left arm and on the right buttock, the temperature dropped. A rise was, however, again noted one week later. Thereupon 50 cc. of autobacteriophage diluted in 350 cc. of physiologic solution of sodium chloride was injected intravenously. This injection was given over a period of one and one-half hours; a febrile reaction with chills lasting three hours ensued. However, within twenty-four hours the patient had a feeling of well being, the temperature returned to normal and recovery followed.

Suture with Buried Knot.—Chalier advises the use of sutures, with the knot concealed behind the edges that have been joined, for aseptic closure of wounds. He considers this technic of especial value in the closing of abdominal incisions, as patients may then be allowed to arise on the third or fourth day after the operation, thus ensuring rapid recovery and preventing the occurrence of phlebitis or embolism.

Marseille-Médical, Marseilles

66: 453-500 (Oct. 15) 1929

*Indwelling Catheter in Injury of Urethra. Tristant.—p. 453.
Suprapubic Prostatectomy: Vicious Urethrocervical Cicatrices. C. Lahayville.—p. 459.
Mesenchymal and Mixed Tumors of Kidney. P. Ciaudo.—p. 472.
*Injuries of Vena Cava Inferior. J. Esménard.—p. 476.
Pneumopyelography. Emperaire.—p. 481.
Primary Tumors of Seminal Vesicle. E. Chauvin.—p. 488.
Hemospermia. E. Chauvin.—p. 494.

Indwelling Catheter in Injury of Urethra.—Tristant considers this treatment of value in patients in whom circular urethrorrhaphy is to be performed later. Preliminary cystostomy should be done to exclude the danger of an ascending infection. This method is contraindicated in patients with chronic retention and a weak urinary bladder or in those in whom the muscles or the mucous membrane show symptoms of deficiency. In these, circular urethrorrhaphy with early gradual dilation of the urethral canal is the best treatment. The case report of his patient, aged 30, who was injured in a motorcycle accident, forms the basis of Tristant's statement. However, his experience covers several other cases, the reports of which will follow at a later date.

Injuries of Vena Cava Inferior.—On the basis of his personal experience during nephrectomy and of a review of the literature, Esménard advises total ligation of the vein, provided the site of the injury is above the point of branching of the renal veins. Although total ligature may to a certain extent be responsible for postoperative complications, it has never been proved to have caused a fatal outcome. He considers this technic preferable to lateral suture if the operation has been unduly protracted or if the condition of the patient necessitates a rapid termination of the intervention. It is also advisable if asepsis cannot be ensured or if the injury is of irregular configuration or too deep for adequate manipulation of the lateral suture. According to Esménard forcipressure or tamponades should be applied only when sutures or ligatures cannot be used.

Paris Médical

2: 417-432 (Nov. 9) 1929

*Acromegaly and Megacolon Due to Tumor of Hypophysis. P. Carnot.—p. 417.
*Colon Bacilli in Urine of Catheterized Patients with Urinary Disorders. Pillet.—p. 421.
Massive Collapse of Lung: Symptoms and Pathogenesis. P. Benedetti.—p. 425.

Acromegaly and Megacolon Due to Tumor of Hypophysis.—Carnot reports the clinical history of a man, aged 43, who had chronic, persistent constipation and occasional headache. Symptoms of acromegaly had been noted during the previous ten years, but he had no severe or localized pain. Roentgen examination showed that there was a marked enlargement of the sella turcica indicating a tumor of the hypophysis. This was likewise demonstrated by alteration of the optic chiasm. Although there was only a slight disturbance of vision, the acuity was unimpaired. The intestinal stasis was accompanied by enlargement of the viscera. Examination showed an enlarged and especially an elongated colon. On the basis of a review of the literature, Carnot points out that the symptoms found in his patient support the theory of a relation between tumors of the hypophysis, acromegaly and enlargement of the viscera.

Colon Bacilli in Urine of Catheterized Patients with Urinary Disorders.—With the exception of urine from patients with gonorrhea and tuberculosis or of urine known to contain typhoid bacilli or pneumococci, Pillet made a bacteriologic examination only of urine obtained by aseptic catheterization in patients with urinary disorders. He found that gram-negative bacilli were predominant. In twenty-seven of forty patients bacilli of the colon bacillus type were found; the rest showed staphylococci and *Bacterium enteritidis*. Cultures of the urine obtained from sixteen patients with infections of the colon group, taken at random, showed fourteen specimens to contain *Bacillus coli* and two to contain *Bacterium mucosum-*

capsulatum and streptococci. Pillet points to the frequency of the occurrence of tubercle bacilli, which he found to be 50 per cent in all patients with urinary disorders. He further stresses the importance of an aseptic bacteriologic examination before a vaccine is made.

Presse Médicale, Paris

37: 1493-1508 (Nov. 16) 1929

External and Internal Functions of Organism. H. Roger.—p. 1493.
*Familial Splenomegalic Cirrhosis. J. Lhermitte and W. S. Muncie.—p. 1495.

Familial Splenomegalic Cirrhosis. — Lhermitte and Muncie's patient, aged 31, had had the first symptoms eight months previously; his hands had begun to weaken and tremble and he had had to give up his profession as a violinist when the fingers of his left hand became incapable of rapid motion. There was also a weakness in the leg muscles, preventing him from standing or walking for any length of time. His hair was gray and the color of his face a peculiar brown. Examination showed that the abdomen was distended on the right side; all the organs except the enlarged liver and spleen appeared to be normal. The visual acuity was good; there was, however, a slight horizontal nystagmus; on the cornea the pigmentation characteristic of progressive lenticular degeneration was noted. The mental condition of the patient was one of extreme depression; he was irresolute and full of anxiety and had become increasingly morose after the death of his sister and brother from cirrhosis of the liver. They had had symptoms similar to his own together with icterus, though without abnormal pigmentation of the cornea. The patient had been married but his wife had left him twice; she had returned again, when he threatened to commit suicide. His father, according to a statement received from another brother of the patient who was a physician, had died of multiple sclerosis. The authors discuss the literature and on the basis of the case histories of the deceased brother and sister point to the unfavorable prognosis for their patient. They conclude that in patients with familial juvenile cirrhosis of the liver, even without nervous symptoms or abnormal pigmentation of the cornea, hereditary progressive lenticular degeneration may be found.

37: 1509-1524 (Nov. 20) 1929

*Protein Equilibrium of Serum in Pulmonary Tuberculosis. C. Achard, M. Bariéty and A. Codounis.—p. 1509.
Amebic Abscess of Liver: Surgical Treatment. H. Costantini.—p. 1511.

Protein Equilibrium of Serum in Pulmonary Tuberculosis.—From a consideration of the protein equilibrium of the blood serum in thirty-two patients with pulmonary tuberculosis, Achard et al. conclude that the albumin quotient may be regarded as a guide in prognosis. In general, an increase in the total albumin is noted, as a result of a hyperglobulinemia that causes a reversal of the albumin quotient. In four patients the quotient was normal (1.23 to 1.88); these had a fibrous afebrile condition. It was slightly lowered (1 to 1.10) in seven patients with caseous ulceration but in good general condition. In ten patients the quotient was considerably lowered (0.8 to 1); there were signs of extensive involvement of the lungs but the general condition was not poor. However, in ten patients in the last stages of the disease, the quotient was very low (0.43 to 0.8). The authors consider that the disturbance of the protein metabolism may be due primarily to a nutritional disturbance. A destruction of serum albumin appears coincident with an excessive formation of serum globulin.

Schweizerische medizinische Wochenschrift, Basel

59: 1169-1192 (Nov. 23) 1929

German Law for Combating Venereal Diseases. F. Pinkus.—p. 1175.
*Experiences with von Kapff's Acid Therapy in Bronchial Diseases. A. Hotz.—p. 1179.
Chronic Rheumatic Polyarthritis in Relation to Active Mesenchyme. G. Irniger.—p. 1183.
Treatment in Mushroom Poisoning. Ceppi.—p. 1188.

Experiences with von Kapff's Acid Therapy in Bronchial Diseases.—Hotz directs attention to the acid therapy that was first used by von Kapff. The inhalation of volatile acids is effective in the treatment of bronchial disturbances, especially in asthma. It can be carried out in two ways, either by means of automatic continuous inhalation or by means of a vacuum inhaler. If the first method is employed, an open container with acid is placed in the sickroom and the acid gradually evaporates. The second method of application requires the use of a mask. The various bronchial disturbances are treated with different gas mixtures, which are prepared according to von Kapff's directions. The inhalation of the volatile acids not only has an influence on the air passages and on the lungs but also affects the metabolism and the general condition. The blood and urine show alkalosis. The patients have a better appetite, their weight increases and they sleep better. The author employed the acid therapy in fourteen patients who had bronchial asthma or asthmatic bronchitis. The majority of the patients were children. Of fourteen persons nine recovered and three showed improvement. The therapeutic results seem to be permanent because relapses did not occur. The inhalation of volatile acids likewise proved helpful in the treatment of catarrh of the upper air passages. In conclusion the author points out that the acid therapy alone is not effective. To check the asthmatic attacks, medication with atropine and with epinephrine is necessary. However, under the influence of the inhalation treatment the attacks become less severe and recur less frequently, until they finally cease completely. If the acid therapy is used in the form of continuous inhalation during sleeping hours, it has to be continued for from two to four months. But the method is simple and cheap and causes no complications.

Semana Médica, Buenos Aires

36: 1161-1220 (Oct. 24) 1929

*Splenectomy in Painful Malarial Splenomegaly. A. Navarro.—p. 1161.
*Malignant Endocarditis of Slow Evolution: Case. T. Martini, D. Mosto and M. Joselevich.—p. 1164.
*Surgical Treatment of Brodie's Abscess. M. Cieza Rodríguez.—p. 1170.
Grave Gonococcal Ophthalmia in Adult: Treatment. L. G. Gret.—p. 1174.
Hemiplegia of Left Side of Body Caused by Commotio Cerebri Induced by Penetrating Projectile. J. M. Macera and I. Feigues.—p. 1176.
Amyloid Degeneration of Conjunctiva: Two Cases. P. Satanowsky and J. A. Senã.—p. 1185.
Spontaneous Renocolic Fistula Caused by Tuberculosis of Kidney (Pyelographic Diagnosis). J. Salleras and G. Vilar.—p. 1196.
Malariotherapy in Paresis. L. Esteves Balado and J. V. d'Oliveira Esteves.—p. 1198.
Sanatoriums and Colonies for Tuberculous Patients. F. R. Torres.—p. 1206.

Splenectomy in Painful Malarial Splenomegaly.—Navarro says that in painful malarial splenomegaly, splenectomy is the only treatment that gives complete success. It not only alleviates the patient's pain but also checks the general disturbances which an abnormal spleen causes. The author believes that all abnormal spleens should be removed. He reports a case in a patient, aged 29, in whom all forms of medical treatment failed. Splenectomy produced rapid and complete recovery.

Malignant Endocarditis of Slow Evolution.—Martini et al. consider the three following points (observed in a patient, aged 36, who died from malignant endocarditis) of great importance: (1) the absence of cardiac murmurs during the evolution of the disease, which indicates a silent form; (2) the discovery of suppurative infarcts in the spleen at necropsy, which are uncommonly in association with endocarditis lenta, and (3) the manifestations which appeared at the final stage of the disease, a few days before death, consisting of a purpuric eruption associated with gangrene of the nose, an intense, violet discoloration of the tip of the toes and an ecchymotic area in the sacral region. The authors considered these manifestations, especially the appearance of purpura, as being of embolic origin in their case. Histologic and bacteriologic examinations confirmed this opinion. Purpura (probably caused by antemortem dissemination of bacteria) appeared when the patient was cachectic, and it may be considered as one form of the so-called terminal purpura which appears in the cachectic stage of some diseases (heart disease, arteriosclerosis and cancer). The authors say that this case proves that the old opinion that embolism occurs in malignant endocarditis is true.

Surgical Treatment of Brodie's Abscess.—Cieza Rodríguez states that the signs and symptoms of Brodie's abscess, both clinically and roentgenologically, are not always easily recognized. In doubtful cases trepanation is necessary to make a diagnosis. The treatment should be surgical. The abscess should be opened widely and curetted thoroughly to ensure good

evacuation of the pus and to remove as completely as possible all the diseased bone. The resulting cavity in the bone should be filled with an antiseptic paste and gauze drainage should be used. If the cavity does not close spontaneously, a muscle or fat graft should be implanted.

Beiträge zur klinischen Chirurgie, Berlin

147: 503-672 (Oct. 16) 1929

Circumrenal Hematoma (Enormous Hemorrhage into Bed of Kidney). K. Doll.—p. 503.
Hygroma Migrans of Bursa Semimembranosa. J. Wulsten.—p. 559.
*Surgical Treatment of Carbuncle on Back of Neck: By Longitudinal Incisions. H. Sprengell.—p. 574.
Spasm of Sphincter of Urinary Bladder. R. Chwalla.—p. 579.
Rupture of Long Head of Biceps. H. Hammel.—p. 620.
Significance of Physiology of Thyroid in Exophthalmic Goiter. G. Büttner.—p. 623.
*Effect of Paravertebral Anesthesia on Kidney Secretion. L. Lurz and H. Röhrich.—p. 639.
Surgical Treatment of Tuberculosis of Lung. L. Heidrich.—p. 642.
Technic for Making Roentgenograms of Sections of Gallstones. H. Habs. —p. 649.
Comparison of Cut Sections and Roentgenograms of Gallstones. H. Habs. —p. 654.

Longitudinal Incisions in Treatment of Carbuncle of the Neck.—Twenty-five years ago P. Drewitz reported that he had found that the best treatment for extensive carbuncles of the neck was to make a series of longitudinal incisions, as many as are needed to expose the carbuncle thoroughly. In some cases three incisions are sufficient; in others as many as six need to be made. Sprengell relates his experience with this method in twelve cases. He says that it promotes healing and gives a far better result than any other method of treatment that he has employed. He does not apply any wet dressings as Drewitz did, but prefers a dry dressing, renewed daily at first, and later as often as is necessary.

Effect of Paravertebral Anesthesia on Secretion of Urine.—A boy, aged 3, with a complete ectopia of the urinary bladder, was made the subject of a study of the excretion of urine by Lurz and Röhrich. By means of paravertebral anesthesia the eleventh and twelfth dorsal and the first lumbar segments of the cord were excluded. Then the boy was made to drink from 200 to 250 cc. of tea. The flow of urine and its sodium chloride content were measured before, during and after the drinking of the tea. The observations of Wiedhopf were not confirmed. The amount of urine excreted was increased. More sodium chloride also was excreted, but the proportion to the amount of urine excreted was less than normal.

Deutsche medizinische Wochenschrift, Berlin

55: 1953-1992 (Nov. 22) 1929

Exogenic Modification of Placental Metabolism: Prenatal Influence and Prophylaxis of Rickets. H. Guggisberg.—p. 1953.
*Pineal Form of Pubertas Praecox. W. Berblinger.—p. 1956.
Quinine Sensitivity in Inoculation Malaria. A. Wittgenstein.—p. 1959.
*Diplostreptococci and Influenza. E. Fauvet.—p. 1959.
*Ulcus Ventriculi with Niche Formation on Greater Curvature. R. Prévôt. —p. 1961.
*Simultaneous Occurrence of Bronchial and Rheumatic Diseases. H. Gehlen and J. Otto.—p. 1964.
Superiority of Operative Treatment in Surgical Tuberculosis. E. N. Stahnke.—p. 1966.
Histochemical Demonstration of Iron in Skin of Patients with Jaundice. W. Hülse.—p. 1967.
Criticism of Brugsch's Theory of Jaundice. L. Hollós.—p. 1968.
Roentgen Irradiation in Treatment of Furuncle, Carbuncle and Abscesses of Sweat Glands. E. Otto.—p. 1968.
Heart Disease and Pregnancy. E. Kehrer.—p. 1969.

Pineal Form of Pubertas Praecox: Pineal Hypertrophy of Genitalia in Adults.—Berblinger discusses several forms of pubertas praecox. The first type, in which either hyperplasia of the suprarenal cortex or hypernephroma is found, is most frequent in girls. The second is the genital form, which is found in both sexes. In this type there exist either tumors or hypertrophy of the generative glands. The third type is the pineal form of pubertas praecox. Nearly all the cases that have been reported thus far were in boys. The author states that the pathologic changes that were found in this form of pubertas praecox differed widely. Some cases have been observed in which the pineal body itself was not affected, but in which a tumor was found in the third ventricle. The author thinks that the pineal body and the nerve centers in that region are closely interrelated. But he also assumes that there are probably two forms of cerebral pubertas praecox; namely, the pineal type and the diencephalic form. The author further states that in adult men, with glioma of the pineal body, hypertrophy of the testes has been observed. This indicates that the pineal body influences the sex organs even after the age of puberty.

Diplostreptococci and Influenza.—Fauvet reports the results of bacteriologic examinations in patients with influenza. Cultures were made from pharyngeal smears, from blood specimens and from pleural punctates. Bacterial cultures were made also during the postmortem examination of persons who had died from influenza. The author asserts that in the majority of cases diplostreptococci were found. He describes the characteristics of this micro-organism and he comes to the conclusion that in many cases the diplostreptococcus determines the course of the influenza. However, it is neither the only nor the primary pathogenic agent. The diplostreptococci are a mutation form of streptococci and the influenzal infection seems to create favorable conditions for their growth.

Ulcus Ventriculi with Niche Formation on Greater Curvature: Criticism of Mechanical Theory of Pathogenesis of Gastric Ulcer.—Prévôt describes the case of a woman, aged 27. She had gastric disturbances, and clinical observation led to the diagnosis of gastric ulcer. Roentgen examination confirmed this diagnosis. It revealed a niche on the posterior wall of the greater curvature, immediately below the cardia. Following dietary and medicinal treatment, the pains gradually disappeared. The author points out that because ulcers are usually located on the lesser curvature, it has been assumed that they are produced by the mechanical irritation caused by the food. However, this theory was based mostly on observations made during postmortem examinations. These investigations reveal the morphologic but not the functional conditions, and it should also be considered that the dead organ is not entirely the same as the living organ. The author then mentions other authorities who contradict the mechanical theory. He comes to the conclusion that the mechanical factor cannot be the only cause of gastric ulcers, especially not in those cases in which the ulcer is located on the greater curvature. A theory of the pathogenesis of gastric ulcer should explain the origin of the first defects of the mucous membrane, and how the ulcer develops and becomes chronic, as well as its most common localization and its familial occurrence. The latter factor indicates that predisposition is of some significance in the development of gastric ulcers.

Simultaneous Occurrence of Bronchial and Rheumatic Diseases: Significance of Allergic Factors in Both Diseases.—Gehlen and Otto observed that many patients who had asthma also showed symptoms of rheumatism. In order to determine whether the same etiologic factors are found in the two diseases, they made cutaneous tests with mold fungi in 125 patients. Positive reactions were found not only in most persons who had bronchial disturbances and rheumatism but also in those who showed only rheumatic symptoms. It was also ascertained that most of the patients had lived in damp and unhealthful homes. The authors do not state definitely that chronic rheumatism is an allergic disease and that it is caused by mold fungi. However, on the basis of their observations they maintain that asthma and rheumatism show a certain etiologic relationship and that it is highly probable that mold fungi are of some significance in the pathogenesis of these diseases.

Deutsche Zeitschrift für Chirurgie, Leipzig

220: 179-431 (Nov.) 1929

*Surgical Shock. T. Fohl and E. Schneider.—p. 179.
*Transfusion of Heterologous Blood. H. Kunz.—p. 196.
*The Intactness of Blood Replacement Fluids, Especially Transfused Serum, Following Experimental Loss of Large Quantities of Blood in Animals. H. U. Kallius.—p. 216.
*Solitary Cysts of Lung and Honeycombed Lung. F. Krampf.—p. 239.
Esophageal-Pulmonary Fistulas. M. Lebsche.—p. 249.
*Artificial Paralysis of Diaphragm (Phrenicotomy) and Cardiospasm. M. Ernst.—p. 258.
*Gastric Ulcer and Chronic Gastritis: Failures of Surgical Treatment. R. Wanke.—p. 263.
Genuine Peritonitis in Children. W. Obadalek.—p. 307.
Interposition of Colon Between Liver and Diaphragm. E. Just.—p. 334.
Treatment of Prolapse of Rectum. R. Demel and G. Adamek.—p. 355.
Roentgenoscopy of Male Urethra. H. Puhl.—p. 372.

Configuration of Normal Kidney Pelvis. H. J. Lauber.—p. 418.
Fracture of Pelvis with Tear of Vagina. R. Wanke.—p. 425.
Protrusion of Head of Femur Through Acetabulum. F. Krampf.—p. 429.

Surgical Shock.—Fohl and Schneider discuss the causes and the treatment of surgical shock. They stress the importance of proper breathing during the administration of the anesthetic and urge that it be developed before operation, for which purpose they employ the breathing mask of Pech. A good circulation is ensured by the proper use of such drugs as digitalis, strychnine and caffeine; subcutaneous infusions (subpectoral) of a dextrose and calcium chloride solution; careful selection of the anesthetic; avoidance of psychic shock; careful handling of the tissues, and thorough hemostasis.

Transfusion of Heterologous Blood.—Kunz reviews the whole subject of transfusion with the blood of animals and reports the results of his experiments, which showed that there are beeves and calves whose erythrocytes do not agglutinate those of human blood and are not hemolyzed, although the same blood may agglutinate and hemolyze the blood of other cattle. If cattle serum hemolyzes human blood, this property is overcome by diluting the former 1:10. The titer of calf serum is lower than that of beef serum. Rabbit serum neither agglutinates nor hemolyzes beef serum, but beef serum has such an effect on rabbit serum even in a 1:10 dilution. The use of citrated beef serum in rabbits usually caused no untoward effect. Therefore, the author is of the opinion that heterologous blood is suitable for transfusion into human beings after careful testing for agglutination and hemolysis.

Duration of Stay of Transfused Fluids in Circulating Blood.—Kallius is of the opinion that neither the erythrocyte count nor the hemoglobin determination is of value in estimating the result of an intravenous transfusion. Only a measurement of the blood plasma is of value. He employs a modification of the congo red method of Griesbach. He relates the results of his experiments on rabbits. Salt solutions and acacia solutions do not remain in the circulation very long, even when injected slowly; on the other hand, pure blood serum and citrated blood serum do not leave the blood vessels even when injected quickly. But it must be borne in mind that the serum is of importance in making a blood transfusion.

Cysts of Lung.—Three cases are reported by Krampf as proof that this lesion is the result of occlusion of a bronchiole or larger tube which leads to the formation of an isolated bronchiectatic cavern or cavity. In one of his cases a large cyst was accompanied by a number of cylindrical congenital bronchiectatic cavities, which he does not believe to have been an accidental association. In the case of the honeycomb lung, however, the dilatations of the bronchi no doubt occurred at the site of a primary aplasia of the lung parenchyma. These cysts remain undiscovered until they become infected; when they are infected they may lead to an empyema. But whether or not empyema develops, the treatment is surgical. Before operating, however, it is important to make sure that the overlying pleural cavity has been obliterated by adhesions; if not, this is brought about artificially before the operation is undertaken. Then the cysts are opened and extirpated, as may be indicated.

Relation of Phrenicotomy to Cardiospasm.—In order to get some data on the possibility of cardiospasm following phrenicotomy, Ernst got in touch with 179 patients who had been subjected to this operation during the years 1921-1929. Those operated on recently were examined with the roentgen ray. In none of the 179 cases was there any evidence that cardiospasm had supervened following the operation; however, it is important that phrenico-exeresis should be performed only after indications have been weighed carefully and it is determined definitely that the operation can and should be done.

Recurrence of Gastric Ulcer.—Among 1,350 operations on the stomach, analyzed by Wanke for the purposes of this study, 110 were done for a recurrence of the symptoms. More than half the cases (56 per cent) were recurrences after gastroenterostomy; 21 per cent followed Billroth I and II operations. In forty-eight cases the ulcer recurred; in the remaining cases other conditions were noted (adhesions in fifty-six). Forty of the forty-eight patients were operated on according to one of Billroth's methods. The author stresses the point that the indications for every secondary operation are the same as those which lead to primary operations.

Klinische Wochenschrift, Berlin

8: 2217-2264 (Nov. 26) 1929

D'Herelle Phenomenon. F. von Gutfeld.—p. 2217.
Relation Between Scarlet Fever and Nephritis. Huebschmann.—p. 2221.
Physical Chemistry of Cell Fats. R. Degkwitz.—p. 2224.
Treatment of Vasomotor Disturbances During Menopause. L. Schoenholz and C. Werner.—p. 2232.
*Examination of Gastric Secretions Without Withdrawal of Gastric Juice. H. Cohen and A. Brock.—p. 2236.
Effect of Camphor on Peripheral Vessels. H. Heimberger.—p. 2238.
Action of Cinchophen on Enterotropic Elimination of Uric Acid. L. Kürti.—p. 2239.
Causes of Paradoxic Movements of Diaphragm, Especially After Phrenic Exeresis. L. Dünner.—p. 2241.
*Meinicke Clarification Reaction in Cerebrospinal Fluid. H. Beyreuther.—p. 2242.
Secretion of Sweat in Hot Water Bath. W. Löwenstein, H. Lemberger and A. Stein.—p. 2244.
Physiologic and Clinical Significance of Platysma Myoides: Its Rôle in Development of Expiratory Insufficiency. L. Hofbauer.—p. 2244.
Atypical Diabetic Coma in Child Aged One Year. E. Lenstrup.—p. 2244.

Examination of Gastric Secretions Without Withdrawal of Gastric Juice.—Cohen and Brock point out that the withdrawal of gastric juice by means of a catheter, for the purpose of determining its acidity, is contraindicated in many cases, especially in patients with severe pulmonary tuberculosis, in arteriosclerosis and in the aged. Attempts have therefore been made to test the secretory function by indirect methods. The authors mention the desmoid and several other reactions. They also point out that the determination of the alveolar carbon dioxide tension has been employed by many for testing the acidity of the stomach. Others thought that the acidity of the urine would indicate the secretory function of the stomach. The authors describe their experiences with a test that was first applied by Strauss. The technic of this method is as follows: On the evening preceding the test, the patient is given a preparatory diet consisting of one egg, four pieces of buttered zwieback and one cup of tea. On the following morning, one hour after the voiding of the night urine, the patient urinates again. The latter portion is used for control purposes. Then the patient drinks 300 cc. of unsweetened tea and is given an injection of 0.5 mg. of histamine. During the following three hours he urinates at half hour intervals. Then the hydrogen ion concentration is determined, and comparisons are made. The tests were performed on nine persons with normal acidity, on fourteen with hyperacidity and on fifteen with anacidity. In all of them the secretory function of the stomach had also been determined by testing the gastric juice that had been withdrawn by means of a catheter. Tabular reports show the amounts of free hydrochloric acid, the total acidity of the stomach, the hydrogen ion concentration of the urine before the test and the increase after the injection. On the basis of their observations the authors conclude that by means of the Strauss method it is possible to determine the secretory function of the stomach without the withdrawal of gastric juice.

Meinicke Clarification Reaction in Cerebrospinal Fluid.—Beyreuther employed the Meinicke clarification reaction for serologic examination of the cerebrospinal fluid. His tests were made on 100 patients with various diseases such as neurosyphilis, meningitis, multiple sclerosis, cerebral or spinal tumors, cerebral arteriosclerosis, uremia, poliomyelitis, epilepsy, encephalitis, bulbar paralysis, commotio cerebri and others. He describes the technic of the reaction. As control tests he employed the Wassermann reaction and several others. The author gives tabular reports that indicate the results of the examinations. The Meinicke clarification test always gave the same reaction as the Wassermann test. The author considers the Meinicke clarification reaction a valuable aid in the serologic examination of the cerebrospinal fluid. It is simple and requires but little time. However, it should not replace the Wassermann test but only supplement it.

Medizinische Klinik, Berlin

25: 1841-1878 (Nov. 29) 1929

*Dietetic Production of Temporary Diabetes Mellitus in Healthy Persons. E. Frank and R. Leiser.—p. 1841.
Results of Implantation of Ovarian Tissues Following Loss of Both Ovaries. Siegert.—p. 1845. C'td.
*Eczema Caused by Bakelite Varnish. F. Blumenthal and K. Jaffé.—p. 1848.

Necessity of Medical Supervision in Respiratory Exercises and in Sports. L. Hofbauer.—p. 1848.
Surgical Therapy in Epilepsy. A. Jirásek.—p. 1850.
Influence of Extrarenal Factors on Tests of Functioning of Kidney. J. Kelemen.—p. 1855.
Pathogenesis and Treatment of Congenital Syphilis. R. Fischl.—p. 1856.

Dietetic Production of Temporary Diabetes Mellitus.—Attention is called by Frank and Leiser to the fact (first observed by Odin) that temporary diabetic disturbances can be produced in healthy persons by means of a certain diet. The authors made experiments on twelve persons. By means of dextrose and carbohydrate tolerance tests, the normal blood sugar curve was determined. After that the subjects were put on a diet that was deficient in carbohydrates and in proteins but provided the necessary number of calories. In some persons the diet was continued for from three to four days, in others for from six to nine days and in a third group for from eleven to sixteen days. On the morning following the completion of the diet the subjects were given 100 Gm. of carbohydrates but no sugar. The tolerance test was then repeated several times during that day. In some instances it was repeated also on the second and third days. Each person received a last tolerance test with 100 Gm. of dextrose. The sugar content of the urine and blood was determined at regular intervals. It was found that the blood sugar was considerably increased and that the urine likewise contained sugar. However, in the patients who had been dieting for only three or four days the glycosuria was slight. Hyperglycemia and glycosuria were generally more pronounced when the restricted diet had been continued for longer periods. The diabetic symptoms were usually most severe on the first day after the diet. On the second and third days, glycosuria was noted only in rare cases. The authors think that the temporary diabetes in healthy persons is probably due to the fact that, as a result of the restriction of carbohydrates, the islands of Langerhans become inactive, and when their functioning is suddenly required again for the metabolism of larger quantities of carbohydrates, they show at first an insufficiency. However, the phenomenon is not only of theoretical interest but also of practical significance. If sugar is detected during the physical examination of a healthy individual and if a diabetic diet is begun and is then followed by a dextrose tolerance test, hyperglycemia and glycosuria will become manifest, and the condition will probably be diagnosed as diabetes mellitus. In order to avoid this, it is essential that the tolerance tests for the determination of diabetic disturbances should be made only after several days of mixed diet.

Eczema Caused by Bakelite Varnish.—Blumenthal and Jaffé describe seven persons who had weeping eczema on the uncovered portions of the body, especially the hands. All of these patients were employed in an industrial plant, where they worked with bakelite varnish, oil of turpentine, shellac, wood oil, benzene and hard paper. When the patients remained away from work and were treated properly, the eczema healed. In order to determine which of the various substances that the patients had worked with had caused the eczema, the authors made skin tests. It was found that the bakelite varnish was the cause of the eczema. The authors further investigated which of the various constituents of bakelite varnish caused the eczema. They found that all who had developed eczema showed a hypersensitivity to phenol.

Monatsschrift für Kinderheilkunde, Leipzig

45: 193-288 (Nov.) 1929

Sleep and Energy Requirements of Nursling. G. Petzoldt.—p. 193.
*New Symptom of German Measles. K. Stolte.—p. 206.
*Congenital Stenosis of Duodenum. G. Weber.—p. 208.
*Hyperplasia of Thymus. A. Laband.—p. 225.
Diagnosis and Prognosis in Epilepsy in Children. G. Remé.—p. 228.
Irradiation in Treatment of Rickets. S. Rosenbaum.—p. 242.
Measurement of Size of Sella Turcica in Children. W. Sartorius.—p. 259.

New Symptom of German Measles.—Stolte believes that in German measles profuse sweating on the penultimate but not the ultimate night before the appearance of the exanthem is of much more frequent occurrence than is generally supposed. The fact that on the following day and night the child feels perfectly well has caused the diagnostic value of this symptom to be underestimated.

Congenital Stenosis of Duodenum.—Weber discusses the diagnosis and clinical aspects of congenital stenosis of the duodenum and presents reproductions of roentgenograms from three cases of this condition that he observed personally.

Hyperplasia of Thymus.—Laband reports a case of hyperplasia of the thymus in an infant, aged 2½ months, in whom the enlarged thymus was one and one-half times as large as the heart. The author believes that the death of the infant from gradual suffocation was caused by pressure exerted on the great vessels and the left atrium.

Zentralblatt für Chirurgie, Leipzig

56: 2881-2944 (Nov. 16) 1929

Treatment of Recent Injuries of Urinary Tract: Urologic Examination to Determine Indications for Treatment. M. Grauhan.—p. 2882.
Sacrococcygeal Chordoma. A. von Tempsky.—p. 2892.
Operations Done by Surgeons Seated. H. Fründ.—p. 2894.
Technic of Pirogoff's Operation. A. Chasin.—p. 2896.
Treatment of Acute Infectious Osteomyelitis. Z. von Berzsenyi.—p. 2898.
Anesthesia of Rectal Mucosa: A New Method Which Prevents Postoperative Retention of Urine. H. Köhler.—p. 2899.
Traumatic Emphysema of Extremities or Gas Edema. R. Hubrich.—p. 2901.
*Obstructive Ileus Caused by Mushrooms. F. Krauss.—p. 2904.
*Irrigation of Peritoneal Cavity for Suppurative Peritonitis. A. Lurje and E. Matis.—p. 2905.

Ileus Caused by Mushrooms.—Krauss relates the case of a girl, aged 16, who presented symptoms which led to a diagnosis of appendicitis and ileus caused by adhesions. The abdomen was opened immediately. About 30 cm. from the ileocecal valve a mass of agglutinated intestine, the size of a man's fist, was disclosed. The mass, with 20 cm. of bowel, was resected. When the bowel was opened, a mass of undigested mushrooms was found. Later the patient admitted having partaken freely of mushrooms.

Irrigation of Peritoneal Cavity for Suppurative Peritonitis.—Lurje and Matis are greatly impressed with the value of continuous irrigation of the peritoneal cavity with physiologic solution of sodium chloride as a part of the surgical technic in cases of suppurative peritonitis. In addition to the usual incision (as, for instance, when operating for an inflamed appendix) a puncture is made in the epigastric region. Through this opening continuous irrigation of the peritoneal cavity is made during the course of the operation. This procedure ensures thorough cleansing of the upper abdominal cavity and evacuation of the lower portion of the cavity. The danger of infection is reduced to a minimum and the condition of the patient after operation is vastly improved. There is less nausea and vomiting, and more general comfort and the bowel evacuates itself without other help.

56: 2945-3008 (Nov. 23) 1929

*Feeding Spleen in Suppurative Lesions of Bones and Joints. F. Loeffler.—p. 2946.
*Sarcoma and the Roentgen Ray. K. Griep.—p. 2947.
Bacteriology and Treatment of Wounds. L. Sas.—p. 2951.
Case of Pedicled Exostosis. R. Seubert.—p. 2953.
Administration of Calcium as a Prophylactic Measure Against Postoperative Lung Complications. H. Bremer.—p. 2955.
Formation of New Vagina from Sigmoid Flexure. E. Ruge.—p. 2958.

Feeding Spleen in Suppurative Lesions of Bones and Joints.—In the treatment of children with extensive tuberculosis of the bones and joints, Loeffler administered fresh spleen with good results. The spleen was dried and powdered and then put into solution (the author does not mention the solvent); however, 1 cc. of the mixture contained 10 Gm. of fresh spleen. The daily dose was 3 tablespoonfuls, one after each meal. Other customary forms of treatment, such as rest, heliotherapy and diet, were not neglected. Only those patients who had been ill a long time in spite of treatment were given the spleen preparation. In from two to three weeks a notable change in the general and local condition of these patients was evident. After four weeks the treatment was discontinued for two weeks; then it was resumed. Always the result was a most satisfactory one. Equally good results were obtained in cases of chronic osteomyelitis in which there was no sequestration of the bone. The author warns against overenthusiasm for this treatment but feels that it is well worth while giving it a trial.

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Sarcoma and the Roentgen Ray.—Griep relates a case in which it seemed that the roentgen ray was responsible for the development of a sarcoma. A man, aged 35, had a tumor of the left fossa supraspinata. At operation it proved to be well encapsulated, and no lymph node metastases could be found. Therefore, it was extirpated without resection of any bone. The tumor proved to be a myxoplastic sarcoma. The patient did well after the operation. For prophylactic reasons postoperative roentgen irradiation was given. After six weeks the patient was dismissed. Two months later an extirpation of the shoulder blade was done because of a recurrence of the tumor, which had appeared during the roentgen irradiation and grown rapidly. The bone, in both fossae, was infiltrated with the growth. Three weeks after this operation, a third was done for another recurrence, but even then the growth of the tumor was not checked. The patient died eight months after the first operation.

Archiv f. Japanische Chirurgie, Kyoto

6: 1-331 (Sept. 20) 1929. Partial Index

*Calcium and Phosphorus Contents of Blood During Healing of Fractures. K. Ohno.—p. 1.
*Function of Suprarenal Cortex. T. Kondo.—p. 62.
*Idem. T. Kondo.—p. 86.
Effect of Phrenic Exeresis on Circulation of Lung. Y. Oyamada. —p. 117.
Effect of Phrenic Exeresis on Respiratory Metabolism. Y. Oyamada. —p. 142.

Calcium and Phosphorus Content of Blood During Healing of Fractures.—Ohno states that following a fracture the calcium content of the blood serum remains unchanged or is slightly decreased during the first week, is slightly increased during the second week and is markedly increased during the third and fourth weeks. It then falls gradually and reaches an almost normal value during the seventh week. Following a fracture the phosphorus content of the blood serum remains within the physiologic limits during the first week, increases slightly during the second week and shows a marked increase, reaching a maximum, during the third week. It then decreases gradually and in the seventh week reaches an approximately physiologic value. During the healing of fractures the quantitative relation between the calcium and the phosphorus content of the blood serum remains unchanged.

Function of Suprarenal Cortex.—Kondo states that the administration of an extract of the suprarenal cortex inhibits fertilization of the ovum and retards the growth and development of frog larvae. The feeding of powdered suprarenal cortex, on the contrary, accelerates their growth and development. However, powdered muscle and parotid have the same action. In young rabbits the parenteral and enteral administration of extract of suprarenal cortex or powdered suprarenal cortex accelerates their development. Here again, however, the same effect is produced in control animals by the feeding of powdered muscle and parotid. From these results the author concludes that the cortex of the suprarenal does not contain a specific substance that accelerates development.

Function of Suprarenal Cortex.—On the basis of animal experiments Kondo concludes that the cortex of the suprarenal has not only a hypoglycemic action but also a hyperglycemic action and is capable of regulating the blood sugar.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

73: 5325-5444 (Nov. 16) 1929

Certain Disturbances in Liver Circulation. W. M. De Vries.—p. 5326.
*Clinical Aspects of Diabetes Insipidus in Children. E. J. Meijers. —p. 5336.
Influence of Quartz Lamp Irradiation on Basal Metabolism. L. Pritzelwitz v. d. Horst.—p. 5344.
Menstruation. G. C. Nijhoff.—p. 5349.
Xanthoma and Hypercholesterolemia. H. W. Siemens.—p. 5355.

Clinical Aspects of Diabetes Insipidus in Children.—Meijers gives the clinical histories of four cases of diabetes insipidus in children, aged from 5 to 11. As to the etiology, in case 1 (a child, aged 11) tuberculosis was present. The child had a tuberculous iritis of both eyes and the Pirquet reaction was positive. There was possibly a tuberculous process in the infundibulum. In case 2, there were indications of encephalitis. The convulsions that the patient had during the first year of life were doubtless manifestations of diffuse encephalitis. In case 3 there were no associated diseases that could be incriminated. In case 4, congenital syphilis was the most likely cause, although the child gave also a positive Pirquet reaction. By means of lumbar puncture, syphilitic meningitis was diagnosed. Antisyphilitic treatment had, however, no effect. Professor Brouwer reported the same experience. Probably there were destroyed ganglion cells on the floor of the third ventricle. But if pressure on the central area by a basal meningitis is sufficient to cause diabetes insipidus, one would expect the latter disorder to be more common than it is.

Acta Medica Scandinavica, Stockholm

72: 93-220 (Oct. 17) 1929

Undulant Fever with Nervous Complications: Case. V. Johnsson. —p. 93.
*Hereditary Hemorrhagic Diathesis. E. Rosling.—p. 104.
Variations in Plasma Proteins in Nonrenal Conditions. H. A. Salvesen. —p. 113.
Frequency of Complications in Scarlet Fever and Diphtheria. G. Dahlberg and G. von Sydow.—p. 124.
*Value of Liver Diet in Simple Anemia. J. Wahlberg.—p. 143.
Dextrose Fixation Test (Loewi). E. B. Salén and T. Nyrén.—p. 167.

Hereditary Hemorrhagic Diathesis.—Rosling reports a case of hereditary hemorrhagic diathesis in a girl, aged 20, with greatly increased bleeding time, normal coagulation time and a normal number of blood platelets.

Value of Liver Diet in Simple Anemia.—In nineteen cases of simple anemia, Wahlberg studied the effects produced by iron and arsenic and by a liver diet. In ten cases regeneration of blood during rest in bed without special treatment was observed. The "spontaneous" power of regeneration was most marked in cases of acute posthemorrhagic anemia and least marked in chronic posthemorrhagic anemia and was practically absent in other chronic cases. In three of thirteen patients with simple anemia there was a better reaction to liver than to iron and arsenic. On the basis of his experience the author states that a liver diet may be tried in cases of simple anemia in which the patients do not react to iron and arsenic, particularly in chronic posthemorrhagic anemia.

Hospitalstidende, Copenhagen

72: 1029-1054 (Oct. 24) 1929

*Chronic Hepatitis in Boy of Twelve. E. Polack.—p. 1044.

Chronic Hepatitis in Boy of Twelve.—Polack considers his case as probably being a slowly developing chronic hypertrophic hepatitis, presumably due to an acute hepatitis or to an acute or subacute injury of the parenchyma. In his opinion dextrose and insulin therapy should be used in all cases of grave insufficiency of the liver.

Ugeskrift for Læger, Copenhagen

91: 1063-1088 (Nov. 28) 1929

Gerson-Sauerbruch-Herrmannsdorfer Diet in Tuberculosis. A. Mårtensson.—p. 1063.
Gerson's Diet in Tuberculosis. H. Mathiesen.—p. 1066.
Acid or Basic Diet. M. Hindhede.—p. 1067.
*Relation of Blood Corpuscles in Diabetes Mellitus. O. J. Nielsen.—p. 1069.
Familial Symmetrical Contracture of Finger (Camptodactylia). L. Heerup. —p. 1072.
Rhizomelic Spondylosis (Strümpell-Marie). O. Hamburger.—p. 1075.
Preparation of Blood Specimens for Determination of Number of Reticulocytes. S. A. Holbøll.—p. 1077.

Relation of Blood Corpuscles in Diabetes Mellitus.—Nielsen concludes that leukocytosis sets in when insufficiency in the reaction regulators of the blood occurs. A count of the white blood corpuscles in diabetic persons not only gives information concerning the gravity of an acidosis established by diaceturia and acetonuria but also gives indications for insulin therapy. He holds that in an emergency, a determination as to whether an unconscious diabetic person suffers from coma or insulin shock is quickly reached by a count of the leukocytes (high in coma, low in insulin shock) and that in febrile conditions in diabetes good indications for insulin therapy are afforded by following the leukocyte count. Counts of the white blood corpuscles simultaneously with determinations of the blood sugar are therefore recommended in all such cases, the leukocyte count to guide in the therapy until the blood sugar values are available.